PB88-132121

# Development of the 1980 NAPAP (National Acid Precipitation Assessment Program) Emissions Inventory

Alliance Technologies Corp., Bedford, MA

Prepared for

Environmental Protection Agency
Research Triangle Park, NC

Dec 86

U.S. Department of Commerce
National Technical Information Service
NTIS

PB88-132121

United States
Environmental Protection
Agency

Air and Energy Engineering
Research Laboratory
Research Triangle Park NC 27711

EPA/600/7-86/057a
December 1986

Research and Development

EPA

# Development of the 1980 NAPAP Emissions Inventory

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA. 22161

## TECHNICAL REPORT DATA

*(Please read Instructions on the reverse before completing)*

|  |  |  |
|---|---|---|
| 1. REPORT NO. EPA/DF/MT-88/033<br>EPA/600/7-86/057a | | 3. RECIPIENT'S ACCESSION NO.<br>PB88-132121 |
| 4. TITLE AND SUBTITLE<br>Development of the 1980 NAPAP Emissions Inventory | | 5. REPORT DATE<br>December 1986 |
| | | 6. PERFORMING ORGANIZATION CODE |
| 7. AUTHOR(S)<br>Janice K. Wagner, Robert A. Walters, Leslie J. Maiocco, and Donald R. Neal | | 8. PERFORMING ORGANIZATION REPORT NO.<br>TR-86-12-G |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>Alliance Technologies Corporation*<br>213 Burlington Road<br>Bedford, Massachusetts 01730 | | 10. PROGRAM ELEMENT NO. |
| | | 11. CONTRACT/GRANT NO.<br>68-02-3997, Tasks 10, 11, 15;<br>68-02-4274, Task 6. |
| 12. SPONSORING AGENCY NAME AND ADDRESS<br>EPA, Office of Research and Development<br>Air and Energy Engineering Research Laboratory<br>Research Triangle Park, NC 27711 | | 13. TYPE OF REPORT AND PERIOD COVERED<br>Task Final; 1/85 - 10/86 |
| | | 14. SPONSORING AGENCY CODE<br>EPA/600/13 |

15. SUPPLEMENTARY NOTES AEERL project officer is J. David Mobley, Mail Drop 61, 919/541-2612. Report is accompanied by 30 tape products (b through ee). PB88-137138 thru
(*) Formerly GCA Technology Division, Inc. For magnetic tapes, see:PB88-137427

16. ABSTRACT The report documents the development of the 1980 National Acid Precipitation Assessment Program (NAPAP) Emissions Inventory. The current version of the annual inventory, Version 5.0, and the related Version 5.2 Eulerian Modeling Inventory and Version 5.3 Regional Oxidant Modeling Inventory represent the most comprehensive, highest quality emissions data available for the 1980 base year. The inventory spans the 48 contiguous U.S. states and 10 Canadian provinces, providing detailed point source data for over 14,000 plants and area source information by source category for 3,070 U.S. counties. Canadian area source data are reported at the province level. Emissions from 11 pollutants ($SO_2$, $SO_4$, $NO_x$, Pb, CO, HCl, HF, $NH_3$, TSP, VOC, and THC) are included in the 5.0 Inventory; in the 5.2 Modeling Inventory, pollutants are disaggregated into 39 classes. Version 5.0/5.2 emissions of $SO_2$, $NO_x$, and VOC are 32.1, 24.4, and 26.2 million tons/yr, respectively. Summaries of emissions data are presented at various levels of aggregation including nation, EPA region, state/province, and source category. Emissions data are also analyzed by plant size, stack height, and general source type, and emissions variations are examined on seasonal and daily bases. The Version 5 Inventory represents the last of a series of NAPAP inventory efforts for base year 1980.

17. KEY WORDS AND DOCUMENT ANALYSIS

| a. DESCRIPTORS | | b. IDENTIFIERS/OPEN ENDED TERMS | c. COSATI Field/Group | |
|---|---|---|---|---|
| Pollution | Euler-LaGrange Equation | Pollution Control | 13B | |
| Emission | Oxidizers | Stationary Sources | 14G | 12A |
| Inventories | Mathematical Models | Acid Precipitation | 15E | 11G |
| Precipitation | | Eulerian Modeling | 04B | |
| Acidity | | Oxidant Modeling | 07D | |
| Assessments | | | | |

|  |  |  |
|---|---|---|
| 18. DISTRIBUTION STATEMENT<br>Release to Public | 19. SECURITY CLASS *(This Report)*<br>Unclassified | 21. NO. OF PAGES<br>455 |
| | 20. SECURITY CLASS *(This page)*<br>Unclassified | 22. PRICE |

EPA Form 2220-1 (9-73)

EPA-600/7-86-057a
December 1986

# DEVELOPMENT OF THE 1980 NAPAP EMISSIONS INVENTORY

by

Janice K. Wagner, Robert A. Walters
Leslie J. Maiocco, Donald R. Neal
ALLIANCE TECHNOLOGIES CORPORATION
213 Burlington Road
Bedford, Massachusetts 01730

EPA Contract No. 68-02-3997
Work Assignment Nos. 10, 11 and 15
and
EPA Contract No. 68-02-4274
Work Assignment No. 6

J. David Mobley, EPA Project Officer
Air and Energy Engineering Research Laboratory
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

This study was conducted in cooperation with the
National Acid Precipitation Assessment Program

Prepared for:

Office of Research and Development
U.S. Environmental Protection Agency
Washington, DC 20460

# ABSTRACT

This report documents the development of the 1980 National Acid Precipitation Assessment Program (NAPAP) Emissions Inventory. The current version of the annual inventory, Version 5.0, and the related Version 5.2 Eulerian Modeling Inventory and Version 5.3 Regional Oxidant Modeling Inventory represent the most comprehensive, highest quality emissions data available for the 1980 base year. The inventory spans the 48 contiguous states and 10 Canadian provinces, providing detailed point source data for over 14,000 plants and area source information by source category for 3,070 U.S counties. Canadian area source data are reported at the province level. Emissions from 11 pollutants ($SO_2$, $SO_4$, $NO_x$, Pb, CO, HCl, HF, $NH_3$, TSP, VOC, and total hydrocarbons) are included in Version 5.0 of the inventory, while in the 5.2 modeling inventory, pollutants are disaggregated into 39 individual classes. NAPAP Version 5.0/5.2 emissions of $SO_2$, $NO_x$ and VOC are 32.1, 24.4, and 26.2 million tons/year, respectively. Summaries of emissions data are presented at various levels of aggregation including nation, EPA region, state/province, and source category. Emissions data are also analyzed by plant size, stack height, and general source type, and emissions variations are examined on a seasonal and daily basis. The Version 5.0 NAPAP Emissions Inventory represents the last of a series of NAPAP inventory compilation efforts for base year 1980. This report provides a history of the inventory development, focusing on enhancements made from version to version. It also includes a number of topics specific to development of Version 5.0 and 5.2, including development of emission factors for newly-added pollutants; incorporation of updated utility data with information from the NAPAP Utility Reference File (NURF); development of temporal, spatial and species allocation factors; and creation of the Flexible Regional Emissions Data System, used to process the 5.0 inventory into the 5.2 and 5.3 modeling inventories.

## CONTENTS

Abstract . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ii
Key to Appendix A Tables, 1980 NAPAP Emissions Inventory Version 5.0 . . v
Key to Appendix A Tables, 1980 NAPAP Emissions Inventory Version 5.2 . . vi
Figures . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . vii
Tables . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . x
Acknowledgments . . . . . . . . . . . . . . . . . . . . . . . . . . . . xiii
Executive Summary . . . . . . . . . . . . . . . . . . . . . . . . . . . xiv

1. Introduction . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
    Background . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
    Objectives . . . . . . . . . . . . . . . . . . . . . . . . . . . 1
    1980 NAPAP Emissions Inventory . . . . . . . . . . . . . . . . . 2
    Report Organization . . . . . . . . . . . . . . . . . . . . . . 5
2. Overview of Emissions Data . . . . . . . . . . . . . . . . . . . 6
    Version 5.0 . . . . . . . . . . . . . . . . . . . . . . . . . . 6
    Version 5.2 . . . . . . . . . . . . . . . . . . . . . . . . . . 37
3. Creation and Quality Assurance of the 1980 NAPAP Emissions Inventory . . . . . . . . . . . . . . . . . . . . . . . . . . . 61
    NAPAP Emissions Inventory Development Approach . . . . . . . . 61
    Evolution and Quality Assurance of the 1980 Annual NAPAP Emissions Inventory . . . . . . . . . . . . . . . . . . . . . 62
    Evolution and Quality Assurance of the 1980 Resolved NAPAP Emissions Inventory . . . . . . . . . . . . . . . . . . 82
4. NAPAP Version 5 Emission Factors . . . . . . . . . . . . . . . . 87
    Primary Sulfate Emission Factors . . . . . . . . . . . . . . . . 88
    HCl and HF Emission Factors . . . . . . . . . . . . . . . . . . 91
    $NH_3$ Emission Factors . . . . . . . . . . . . . . . . . . . . 93
    Alkaline Dust Emission Factors . . . . . . . . . . . . . . . . . 97
5. Development of Emissions Estimates for the Utility Sector . . . . 100
    NAPAP Utility Reference File (NURF) . . . . . . . . . . . . . . 100
    NAPAP Inventory Updates File (NIUF) . . . . . . . . . . . . . . 105
6. Development of Temporal, Species, and Spatial Allocation Factors . . . . . . . . . . . . . . . . . . . . . . . . . . . . 108
    Temporal Allocation Factor Development . . . . . . . . . . . . . 108
    Spatial Allocation Factor Development . . . . . . . . . . . . . 126
    Speciation Factor Development . . . . . . . . . . . . . . . . . 140
7. Emissions Inventory Software Development and Data Processing . . 151
    FREDS System . . . . . . . . . . . . . . . . . . . . . . . . . . 151
    Data Processing Results . . . . . . . . . . . . . . . . . . . . 153
    Products Available . . . . . . . . . . . . . . . . . . . . . . . 158

References . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 172

CONTENTS (continued)

Appendices

A. Detailed Emissions Summaries . . . . . . . . . . . . . . . . . . . . A-1
B. Default Parameter Tables and SAROAD Listings . . . . . . . . . . . B-1
C. Figures Depicting United States Area Source Temporal Allocation Factors . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . C-1
D. Listing of Source Classification Codes for U.S. and Canadian Point and Area Sources . . . . . . . . . . . . . . . . . . . . D-1
E. Speciation Files and Discussion of Conversion of Emission Rates From Moles/Year to Tons/Year. . . . . . . . . . . . . . . . . . . . E-1

## KEY TO APPENDIX A TABLES, 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0

| National coverage | Source type | Level of resolution | Hydrocarbon classes ? | Units | Page |
|---|---|---|---|---|---|
| U.S. | Area | SCC | No | Tons | A-4 - A-5 |
| | | | | Metric Tons | A-6 - A-7 |
| | | State | No | Tons | A-8 |
| | | | | Metric Tons | A-9 |
| | | Region | No | Tons | A-10 |
| | | | | Metric Tons | A-10 |
| | Point | SCC | No | Tons | A-11 - A-17 |
| | | | | Metric Tons | A-18 - A-24 |
| | | State | No | Tons | A-25 |
| | | | | Metric Tons | A-26 |
| | | Region | No | Tons | A-27 |
| | | | | Metric Tons | A-27 |
| | Area & Point | State | No | Tons | A-28 |
| | | | | Metric Tons | A-29 |
| | | Region | No | Tons | A-30 |
| | | | | Metric Tons | A-30 |
| Canada | Area | SCC | No | Tons | A-31 - A-33 |
| | | | | Metric Tons | A-34 - A-36 |
| | | Province | No | Tons | A-37 |
| | | | | Metric Tons | A-37 |
| | Point | SCC | No | Tons | A-38 - A-39 |
| | | | | Metric Tons | A-40 - A-41 |
| | | Province | No | Tons | A-42 |
| | | | | Metric Tons | A-42 |
| | Area & Point | Province | No | Tons | A-43 |
| | | | | Metric Tons | A-43 |
| U.S. & Canada | Area & Point | Totals | No | Tons | A-44 |
| | | | | Metric Tons | A-44 |
| U.S. | Area & Point (Emissions density) | State | No | Tons/sq mi. | A-45 - A-46 |

## KEY TO APPENDIX A TABLES, 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2

| National coverage | Source type | Level of resolution | Hydrocarbon classes ? | Units | Page |
|---|---|---|---|---|---|
| U.S. | Area | SCC | No | Tons | A-47 - A-48 |
| | | | | Metric Tons | A-49 - A-50 |
| | | | Yes | Moles | A-51 - A-54 |
| | | State | No | Tons | A-55 |
| | | | | Metric Tons | A-56 |
| | | | Yes | Moles | A-57 - A-58 |
| | | Region | No | Tons | A-59 |
| | | | | Metric Tons | A-59 |
| | | | Yes | Moles | A-60 |
| | Point | SCC | No | Tons | A-61 - A-67 |
| | | | | Metric Tons | A-68 - A-74 |
| | | | Yes | Moles | A-75 - A-88 |
| | | State | No | Tons | A-89 |
| | | | | Metric Tons | A-90 |
| | | | Yes | Moles | A-91 - A-92 |
| | | Region | No | Tons | A-93 |
| | | | | Metric Tons | A-93 |
| | | | Yes | Moles | A-94 |
| | Area & Point | State | No | Tons | A-95 |
| | | | | Metric Tons | A-96 |
| | | | Yes | Moles | A-97 - A-98 |
| | | Region | No | Tons | A-99 |
| | | | | Metric Tons | A-99 |
| | | | Yes | Moles | A-100 |
| Canada | Area | SCC | No | Tons | A-101 - A-103 |
| | | | | Metric Tons | A-104 - A-106 |
| | | | Yes | Moles | A-107 - A-112 |
| | | Province | No | Tons | A-113 |
| | | | | Metric Tons | A-113 |
| | | | Yes | Moles | A-114 |
| | Point | SCC | No | Tons | A-115 - A-116 |
| | | | | Metric Tons | A-117 - A-118 |
| | | | Yes | Moles | A-119 - A-122 |
| | | Province | No | Tons | A-123 |
| | | | | Metric Tons | A-123 |
| | | | Yes | Moles | A-124 |
| | Area & Point | Province | No | Tons | A-125 |
| | | | | Metric Tons | A-125 |
| | | | Yes | Moles | A-126 |
| U.S. & Canada | Area & Point | Totals | No | Tons | A-127 |
| | | | | Metric Tons | A-127 |
| | | | Yes | Moles | A-128 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

## FIGURES

Number | | Page
---|---|---
1-1 | Major program components for developing the 1980 NAPAP emissions inventory . . . . . . . . . . . . . . . . . . . . . . . | 3
2-1 | 1980 NAPAP Emissions Inventory Version 5.0 - relative distribution of point versus area source emissions for $SO_2$, $NO_x$, and VOC . . . . . . . . . . . . . . . . . . . . . . . . . . . | 11
2-2 | 1980 NAPAP Emissions Inventory Version 5.0 - distribution of U.S. emissions by source category for $SO_2$, $NO_x$, and VOC . . . | 13
2-3 | 1980 NAPAP Emissions Inventory Version 5.0 - distribution of Canadian emissions by source category for $SO_2$, $NO_x$, and VOC . | 14
2-4 | 1980 NAPAP Emissions Inventory Version 5.0 - combined U.S. and Canadian emissions totals by year of record . . . . . . . . . | 15
2-5 | 1980 NAPAP Emissions Inventory Version 5.0 - spatial distribution of point sources emitting greater than 25,000 tons/year $SO_2$ . . . . . . . . . . . . . . . . . . . . . . . | 19
2-6 | 1980 NAPAP Emissions Inventory Version 5.0 - distribution of point source emissions by estimation method . . . . . . . . . | 20
2-7 | 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 21
2-8 | 1980 NAPAP Emissions Inventory Version 5.0 - $NO_x$ state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 22
2-9 | 1980 NAPAP Emissions Inventory Version 5.0 - VOC state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 23
2-10 | 1980 NAPAP Emissions Inventory Version 5.0 - TSP state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 24
2-11 | 1980 NAPAP Emissions Inventory Version 5.0 - $NH_3$ state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 25
2-12 | 1980 NAPAP Emissions Inventory Version 5.0 - $SO_4$ state emissions density . . . . . . . . . . . . . . . . . . . . . . . | 26

FIGURES (continued)

Number Page

2-13 1980 NAPAP Emissions Inventory Version 5.0 - Pb state emissions density . . . . . . . . . . . . . . . . . . . . . . 27

2-14 1980 NAPAP Emissions Inventory Version 5.0 - CO state emissions density . . . . . . . . . . . . . . . . . . . . . . 28

2-15 1980 NAPAP Emissions Inventory Version 5.0 - HCl state emissions density . . . . . . . . . . . . . . . . . . . . . . 29

2-16 1980 NAPAP Emissions Inventory Version 5.0 - HF state emissions density . . . . . . . . . . . . . . . . . . . . . . 30

2-17 1980 NAPAP Emissions Inventory Version 5.0 - THC state emissions density . . . . . . . . . . . . . . . . . . . . . . 31

2-18 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ county emissions density . . . . . . . . . . . . . . . . . . . . . . 32

2-19 1980 NAPAP Emissions Inventory Version 5.0 - $NO_x$ county emissions density . . . . . . . . . . . . . . . . . . . . . . 33

2-20 1980 NAPAP Emissions Inventory Version 5.0 - VOC county emissions density . . . . . . . . . . . . . . . . . . . . . . 34

2-21 1980 NAPAP Emissions Inventory Version 5.0 - TSP county emissions density . . . . . . . . . . . . . . . . . . . . . . 35

2-22 1980 NAPAP Emissions Inventory Version 5.0 - $NH_3$ county emissions density . . . . . . . . . . . . . . . . . . . . . . 36

2-23 1980 NAPAP Emissions Inventory Version 5.2 - hourly emissions patterns for $SO_2$, $NO_x$, and VOC for a typical summer weekday . 46

2-24 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. point sources . . . . . . . . . . . . . . . . . 47

2-25 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. area sources . . . . . . . . . . . . . . . . . 48

2-26 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. point and area sources . . . . . . . . . . . 49

2-27 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. point sources . . . . . . . . . . . . . . . . . 50

2-28 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. area sources . . . . . . . . . . . . . . . . . 51

FIGURES (continued)

| Number | | Page |
|---|---|---|
| 2-29 | 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. point and area sources . . . . . . . . . . . | 52 |
| 2-30 | 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emissions, U.S. point sources . . . . . . . . . . . . . . . . . | 53 |
| 2-31 | 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emissions, U.S. area sources . . . . . . . . . . . . . . . . . | 54 |
| 2-32 | 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emissions, U.S. point and area sources . . . . . . . . . . . | 55 |
| 2-33 | 1980 NAPAP Emissions Inventory Version 5.2 - $SO_2$ emissions for a typical summer weekday at 1700 GMT . . . . . . . . . . | 56 |
| 2-34 | 1980 NAPAP Emissions Inventory Version 5.2 - $NO_x$ emissions for a typical summer weekday at 1700 GMT . . . . . . . . . . | 57 |
| 2-35 | 1980 NAPAP Emissions Inventory Version 5.2 - VOC emissions for a typical summer weekday at 1700 GMT . . . . . . . . . . | 58 |
| 2-36 | 1980 NAPAP Emissions Inventory Version 5.2 - TSP emissions for a typical summer weekday at 1700 GMT . . . . . . . . . . | 59 |
| 2-37 | 1980 NAPAP Emissions Inventory Version 5.2 - $NH_3$ emissions for a typical summer weekday at 1700 GMT . . . . . . . . . . | 60 |
| 3-1 | Evolution of the 1980 NAPAP emissions inventory . . . . . . . . | 63 |
| 5-1 | Hierarchy of NURF data sources by data element . . . . . . . . | 103 |
| 6-1 | Development of land use allocation factors . . . . . . . . . . | 130 |
| 6-2 | Example of county to grid cell areal relationship . . . . . . . | 132 |

## TABLES

| Number | | Page |
|---|---|---|
| 1-1 | 1980 NAPAP Emissions Inventory Coverage | 4 |
| 2-1 | 1980 NAPAP Emissions Inventory Version 5.0 - Annual U.S. Point and Area Source Emissions by EPA Region | 7 |
| 2-2 | 1980 NAPAP Emissions Inventory Version 5.0 - Annual U.S. Point and Area Source Emissions by State | 8 |
| 2-3 | 1980 NAPAP Emissions Inventory Version 5.0 - Annual Canadian Point and Area Source Emissions by Province | 9 |
| 2-4 | 1980 NAPAP Emissions Inventory Version 5.0 - Point and Area Source Emissions by Major Category | 12 |
| 2-5 | 1980 NAPAP Emissions Inventory Version 5.0 - Emissions Percentages by Emissions Release Height (Combined U.S. and Canadian Sources) | 17 |
| 2-6 | 1980 NAPAP Emissions Inventory Version 5.0 - Distribution of $SO_2$, $NO_x$, and VOC Emissions Point Sources by Size Range | 18 |
| 2-7a | 1980 NAPAP Emissions Inventory Version 5.2 - Annual U.S. Point and Area Source Emissions by EPA Region | 38 |
| 2-7b | 1980 NAPAP Emissions Inventory Version 5.2 - Annual U.S. Point and Area Source Hydrocarbon Species Emissions by EPA Region | 39 |
| 2-8a | 1980 NAPAP Emissions Inventory Version 5.2 - Annual U.S. Point and Area Source Emissions by State | 40 |
| 2-8b | 1980 NAPAP Emissions Inventory Version 5.2 - Annual U.S. Point and Area Source Hydrocarbon Species Emissions by State | 41 |
| 2-9a | 1980 NAPAP Emissions Inventory Version 5.2 - Annual Canadian Point and Area Source Emissions by Province | 43 |
| 2-9b | 1980 NAPAP Emissions Inventory Version 5.2 - Annual Canadian Point and Area Source Hydrocarbon Species Emissions by Province | 43 |

TABLES (continued)

Number | | Page
---|---|---
2-10 | 1980 NAPAP Emissions Inventory Version 5.0 - Seasonal Variation in Emissions of $SO_2$, $NO_x$ and VOC . . . . . . . . . . . | 44
3-1 | Emissions Totals for 1980 and Non-1980 Sources in 1980 NAPAP Inventory (Version 5.0) . . . . . . . . . . . . . . . . . | 75
3-2 | Plant Level QA Checks of 1980 NAPAP U.S. Point Sources (Version 5.0) . . . . . . . . . . . . . . . . . . . . . . . . | 76
3-3 | Point Level QA Checks of 1980 NAPAP U.S. Point Sources (Version 5.0) . . . . . . . . . . . . . . . . . . . . . . . . | 77
3-4 | SCC Level QA Checks of 1980 NAPAP U.S. Point Sources (Version 5.0) . . . . . . . . . . . . . . . . . . . . . . . . | 79
3-5 | Summary of Total U.S. Emissions from Versions 1.0 - 5.0 of the 1980 NAPAP Inventory . . . . . . . . . . . . . . . . . . | 81
3-6 | Size Cutoffs for Version 5.0 of the NAPAP Point Source Inventory . . . . . . . . . . . . . . . . . . . . . . . . . | 84
3-7 | Temporal Scenarios Available Under the 1980 NAPAP Emissions Inventory, Version 5.2 and 5.3 . . . . . . . . . . . . . . . | 85
4-1 | Primary Sulfate Emission Factors . . . . . . . . . . . . . . . | 89
4-2 | Hydrogen Chloride and Hydrogen Fluoride Emission Factors. . . . | 92
4-3 | Ammonia Emission Factors . . . . . . . . . . . . . . . . . . . | 95
4-4 | Anthropogenic Point Source Alkaline Particulate Emission Factors . . . . . . . . . . . . . . . . . . . . . . . . . . | 98
5-1 | Major Data Inputs to NURF . . . . . . . . . . . . . . . . . . | 101
5-2 | Sources of Unit-Specific Data . . . . . . . . . . . . . . . . | 104
6-1 | Application of Temporal Allocation Factors to Total Hydrocarbon Emissions for U.S. Area Source Category 32, Medium Duty Gasoline Vehicles - Rural Roads . . . . . . . . . . . . . . . | 110
6-2 | Temporal Allocation Factor Development for NAPAP Version 5.2 Emissions Categories . . . . . . . . . . . . . . . . . . . . | 112
6-3 | Canadian Area Source Categories and Temporal Factor Level of Specificity . . . . . . . . . . . . . . . . . . . . . . . | 120

TABLES (continued)

Number Page

6-4 Sample Displaying Format of U.S. Area Source Temporal Allocation Factor Records . . . . . . . . . . . . . . . . . . . . 127

6-5 Allocation Factors for Canadian Area Sources . . . . . . . . . . 135

6-6 Spatial Allocation Factor Surrogates for NAPAP Version 5.2 Area Source Emissions Categories . . . . . . . . . . . . . . . 136

6-7 Definition of Classes for Hydrocarbon Speciation, Versions 5.2 and 5.3 . . . . . . . . . . . . . . . . . . . . . . . . . 141

6-8 Hydrocarbon Species/Class Assignments for 1980 NAPAP Inventory Versions 5.2 and 5.3 . . . . . . . . . . . . . . . . . . . . . 143

7-1 FREDS Processing--U.S. Point Sources . . . . . . . . . . . . . . 155

7-2 FREDS Processing--Canadian Point Sources . . . . . . . . . . . 156

7-3 FREDS Processing--U.S. Area Sources . . . . . . . . . . . . . . . 157

7-4 FREDS Processing--Canadian Area Sources . . . . . . . . . . . . 159

7-5 NAPAP Version 5 Products . . . . . . . . . . . . . . . . . . . 160

7-6 Version 5.0, U.S. and Canadian Point Sources (SAS and EBCDIC Format) . . . . . . . . . . . . . . . . . . . . . . . . . . . 161

7-7 Version 5.0, U.S. and Canadian Area Sources (SAS and EBCDIC Format . . . . . . . . . . . . . . . . . . . . . . . . . . . 164

7-8 Version 5.2, Point Sources (SAS and EBCDIC Format) . . . . . . 166

7-9 Version 5.2, Area Sources (SAS and EBCDIC Format) . . . . . . . 168

7-10 Version 5.3, Point Sources (SAS and EBCDIC Format) . . . . . . 169

7-11 Version 5.3, Area Sources (SAS and EBCDIC Format) . . . . . . . 171

# ACKNOWLEDGMENTS

This report describes the development of the 1980 NAPAP Emissions Inventory, a project administered by the U.S. Environmental Protection Agency (EPA) with funding from the National Acid Precipitation Assessment Program (NAPAP) Task Group on Emissions and Controls. David J. Beecy of the U.S. Department of Energy serves as chairman of this task group, and Edward C. Trexler (DOE) serves as deputy chairman.

The project has been a cooperative effort involving personnel from both the EPA Office of Research and Development (ORD) and the EPA Office of Air Quality Planning and Standards (OAQPS). In particular, Lowell Smith, Mike Maxwell and Dale Pahl made significant contributions from ORD, while John Bosch and Chuck Mann were the primary contributors from OAQPS. In addition, several contractors contributed to the compilation of the 1980 NAPAP Emissions Inventory. Douglas Toothman and the staff of Engineering-Science were responsible for the creation of the 1980 NAPAP Annual Emissions Inventory described in Section 3. Emission factors discussed in Section 4 were developed by James Homolya of Radian and by David Misenheimer of Alliance. Edward Pechan of E. H. Pechan & Associates developed the NAPAP Utility Reference File (NURF) used to generate emissions estimates for utilities in the NAPAP 5.0 inventory (as described in Section 5). Canadian emissions and allocation factors were provided by Frank Vena of Environment Canada. In addition, Joan Novak of EPA's Atmospheric Sciences Research Laboratory provided valuable support and guidance.

# EXECUTIVE SUMMARY

The 1980 NAPAP Emissions Inventory has been developed by the Task Group on Emissions and Controls of the National Acid Precipitation Assessment Program (NAPAP). This report summarizes the data in the emissions inventory and documents the history of its development and enhancements to previous versions.

## SCOPE OF THE 1980 NAPAP EMISSIONS INVENTORY

The 1980 NAPAP Emissions Inventory represents the best available point and area source emissions data for the United States and Canada for the base year 1980. The NAPAP study area extends from 25 to 60 degrees north latitude and 50 to 125 degrees west longitude.

### Annual Emissions Inventory

Within the NAPAP study area, the inventory contains annual point source emissions data for 14,244 plants encompassing 36,807 emission points and 52,904 source classification code (SCC) or process level records. Area source emissions are reported for 88 emissions categories for the 3,070 counties in the 48 contiguous United States and the District of Columbia, and for 157 categories for 10 Canadian provinces. Emissions for 11 pollutants are reported in the annual emissions inventory: $SO_2$, $SO_4$, $NO_x$, Pb, CO, HCl, HF, $NH_3$, TSP, VOC, and THC. Volatile Organic Compounds (VOC) are defined as reactive hydrocarbon species, whereas the Total Hydrocarbon (THC) category includes both reactive and nonreactive species. This annual emissions inventory is termed "Version 5.0."

### Eulerian Modeling Emissions Inventory

NAPAP requires an emissions inventory that is suitable as input to the Regional Acid Deposition Model (RADM). The RADM dictates that annual emissions be further resolved temporally, spatially, and by pollutant species.

Temporal resolution is accomplished by applying factors which allocate annual emissions to 24 hourly emissions totals for a "typical" weekday, Saturday, and Sunday in each season, giving a total of 12 temporal scenarios, each suitable as RADM input. The point source and county-level area source emissions are spatially allocated to 63,000 20 x 20 kilometer grid cells, each representing 1/6 degree latitude by 1/4 degree longitude.

Three pollutants from the annual inventory ($NO_x$, TSP, and total hydrocarbons) are further resolved into constituent species or classes of species. Although the data handling system was designed to accommodate the 29 hydrocarbon classes used in the RADM, lack of speciation profiles resulted in estimated emissions of zero for some classes. In addition, $NO_x$ emissions were not maintained in the resolved inventory following speciation into NO and $NO_2$. As a result, the Eulerian Modeling Emissions Inventory (Version 5.2) contains a total of 39 pollutants as follows:

$SO_2$
$SO_4$
NO
$NO_2$
Pb
CO
HCl
HF
$NH_3$
TSP
Calcium
Magnesium
Potassium
Sodium
VOC
THC
Methane
Ethane
Ethylene
Propane
Propylene
N-butane
Isobutane
Isobutene
Pentane
Isopentane
Other Alkanes
Other Alkenes
Other Organic Acids
Formaldehyde
Acetaldehyde
Acetone
Other Ketones
Other Aldehydes
Xylene
Benzene
Toluene
Ethylbenzene
Other Aromatics

## EMISSIONS SUMMARY

### Annual Emissions Inventory

Table 1 details the annual U.S. and Canadian emissions of the 11 pollutants in Version 5.0 of the 1980 NAPAP Emissions Inventory. The distribution of $SO_2$ emissions among major source categories and by source type (point and area) is shown in Figure 1. Clearly, point sources (mainly utilities and smelters) are the major $SO_2$ emitters. State and county $SO_2$ emission density maps are shown in Figures 2 and 3; the concentration of $SO_2$ emissions east of the Mississippi River is apparent. This report contains similar maps for additional pollutants; $SO_2$ is used here as an example.

### Eulerian Modeling Emissions Inventory

The annual emissions of the 39 species represented in Version 5.2 of the 1980 NAPAP Emissions Inventory are summarized in Table 2. These totals reflect the application of species allocation factors to $NO_x$, TSP, and THC emissions.

Emissions totals for some pollutants in Version 5.2 are slightly lower than in Version 5.0, because a small number of sources could not be properly allocated. As an example, 40 Canadian point source observations fell outside

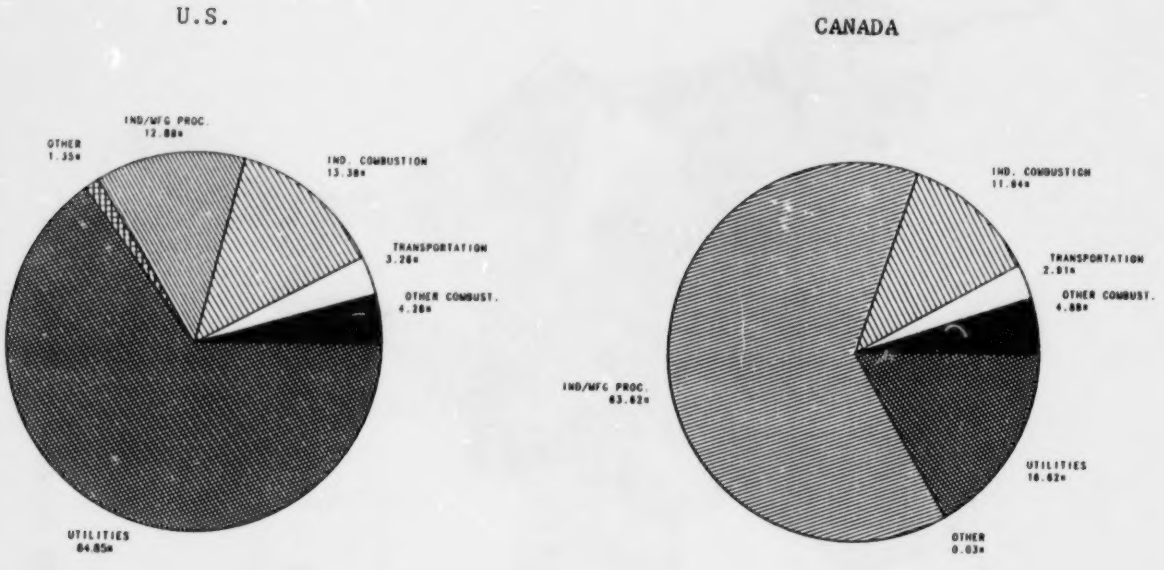
### TABLE 1. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - AREA AND POINT SOURCES

| | THOUSAND TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| Canada | 5,109 | 188 | 2,054 | NR | 18,036 | NR | NR | 210 | 31,574 | 2,994 | 5,138 |
| Contig. U.S. | 26,954 | 976 | 22,352 | 32 | 99,309 | 527 | 115 | 839 | 42,617 | 23,165 | 24,977 |
| Total | 32,063 | 1,164 | 24,406 | 32 | 117,345 | 527 | 115 | 1,048 | 74,192 | 26,158 | 30,115 |

NR => Not Reported

Note: Numbers may not sum due to rounding.

Annual $SO_2$ emissions by source category



Annual $SO_2$ emissions by source type

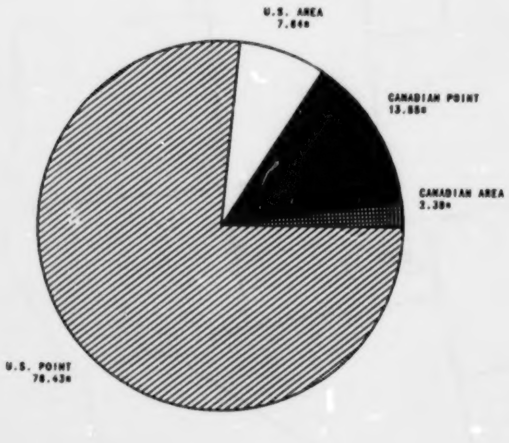


Figure 1. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ emissions by source category and source type.

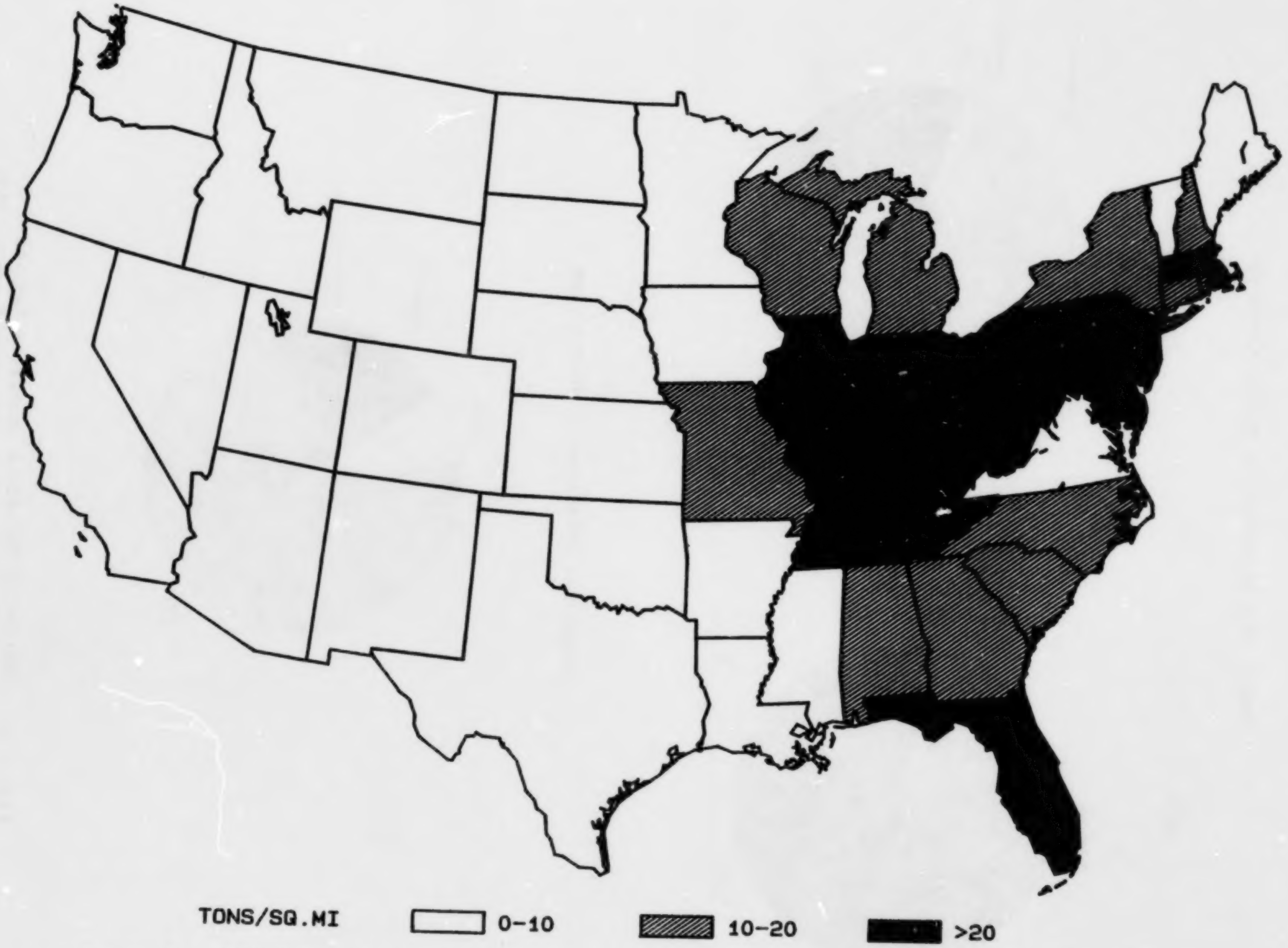

TONS/SQ.MI
0-10
10-20
>20

Figure 2. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ state emissions density.

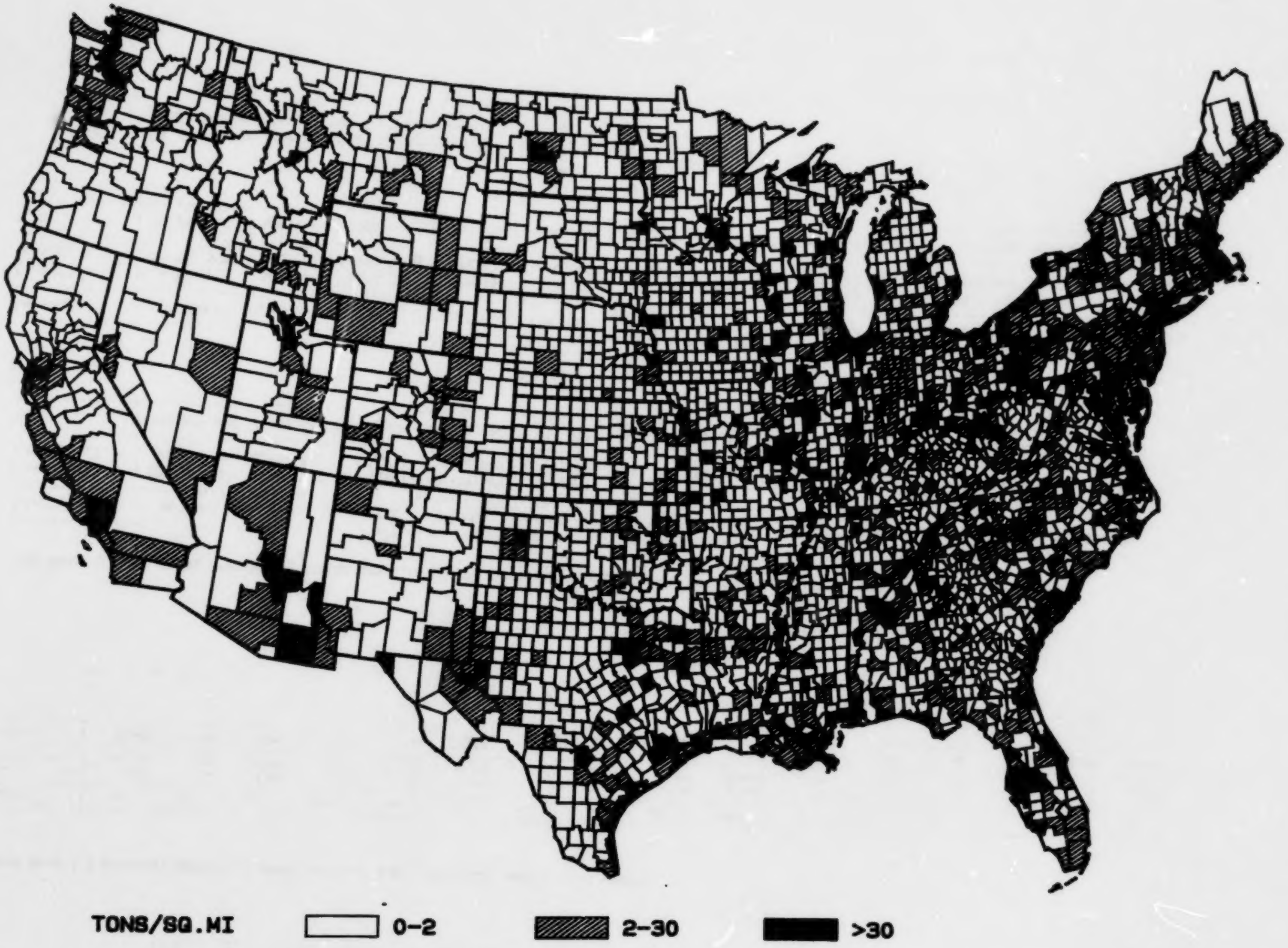

TONS/SQ.MI
0-2
2-30
>30

Figure 3. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ county emissions density.

## TABLE 2. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - AREA AND POINT SOURCES

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN & U.S. EMISSIONS, AREA & POINT SOURCES

| Country | THOUSAND TONS/YEAR<br>SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 5,095 | 167 | 1,879 | 171 | NR | 17,986 | NR | NR | 210 | 31,509 | 17 | 5 | 3 | 3 | 2,992 | 5,135 |
| Contig. U.S. | 26,954 | 976 | 20,877 | 1,475 | 32 | 99,309 | 527 | 115 | 839 | 42,617 | 114 | 32 | 13 | 15 | 23,165 | 24,977 |
| Total | 32,049 | 1,143 | 22,756 | 1,646 | 32 | 117,295 | 527 | 115 | 1,049 | 74,126 | 130 | 37 | 16 | 18 | 26,156 | 30,113 |

NR => Not Reported

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN & U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

| Country | THOUSAND MOLES/YEAR<br>METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENT | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 120,389,361 | 759,253 | 1,096,057 | 2,339,149 | 643,943 | 814,803 | 27,796 | 15,103,733 | 9,434,992 | 2,001,986 | 14,897 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 |
| Total | 212,383,507 | 7,457,514 | 5,175,775 | 18,311,194 | 3,945,097 | 4,109,096 | 368,171 | 149,551,298 | 51,046,722 | 17,459,650 | 118,138 |

| Country | THOUSAND MOLES/YEAR<br>ALKENES | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATIC | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG. ACID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada | 6,317,955 | 547,649 | 1,172,180 | 1,129,434 | 238,103 | 398,445 | 2,626,378 | 330,143 | 105,814 | 424,770 | 309,714 | 33,100 |
| Contig. U.S. | 28,722,513 | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |
| Total | 35,040,468 | 6,040,419 | 17,664,608 | 14,891,909 | 3,108,923 | 4,409,982 | 21,825,970 | 2,578,090 | 922,107 | 7,678,747 | 4,686,543 | 1,627,737 |

For conversion of hydrcarbon classes to tons/year, see discussion in Appendix E.
Note: Numbers may not sum due to rounding.

the northern and western boundaries of the NAPAP domain (60° north latitude and 125° west longitude, respectively) and were therefore not retained in Version 5.2 of the inventory.

The temporal variability of $SO_2$ emissions is graphically shown in Figure 4. Since hour 12 Greenwich Mean Time corresponds to 8 a.m. Eastern Daylight Time, it is clear that national $SO_2$ emissions are greatest during the daytime.

Data in the Version 5.2 inventory are spatially resolved into grids measuring 1/6 degree latitude by 1/4 degree longitude (approximately 20 x 20 km). Figure 5 is a surface plot showing the spatial distribution of point and area source annual $SO_2$ emissions. Point and area source $SO_2$ emissions for a typical summer weekday (1 of 12 temporal scenarios) are shown in Figure 6; here an 80 x 80 km grid is used for clarity of presentation. Additional surface plots and grid maps are provided in Section 2.

## INVENTORY ENHANCEMENTS

Several related NAPAP work assignments resulted in work products which have been applied in the development of the current version of the 1980 NAPAP Emissions Inventory. Emission factors were developed for HCl, HF, $NH_3$, and $SO_4$, and applied to generate emissions estimates in the current inventory. A significant improvement to the previous inventory was the integration of the NAPAP Utility Reference File into the inventory, replacing previous National Emissions Data System (NEDS) data with quality assured emissions estimates for the utility sector.

In order to create the Eulerian Modeling Emissions Inventory (Version 5.2) used in the testing of the RADM, temporal, spatial, and species allocation factors were developed. The basis for these factors was the Northeast Corridor Regional Modeling Project (NECRMP); these factors were quality assured and revised as necessary. Allocation factors were developed for those states not considered in the NECRMP study. The allocation factors and the 1980 NAPAP Annual Emissions Inventory (Version 5.0) were used as inputs to the Flexible Regional Emissions Data System (FREDS), an emissions inventory data processing system developed for NAPAP. Written in the command language of the Statistical Analysis System (SAS), FREDS was designed to allow the vast amount of data in the NAPAP inventory to be processed efficiently.

EPA's Atmospheric Sciences Research Lab (ASRL) requested that an emissions inventory be developed to enable testing of the Regional Oxidant Model (ROM), which requires hydrocarbon species consistent with Carbon Bond IV mechanisms as input. The flexibility of FREDS was utilized and a Version 5.3 inventory was developed.

An uncertainty methodology was developed by Brookhaven National Laboratory and applied to the 1980 NAPAP Emissions Inventory; this effort and its results are documented in a separate EPA report.

A complete listing of the products of this effort in printed and magnetic form is presented in Table 3.

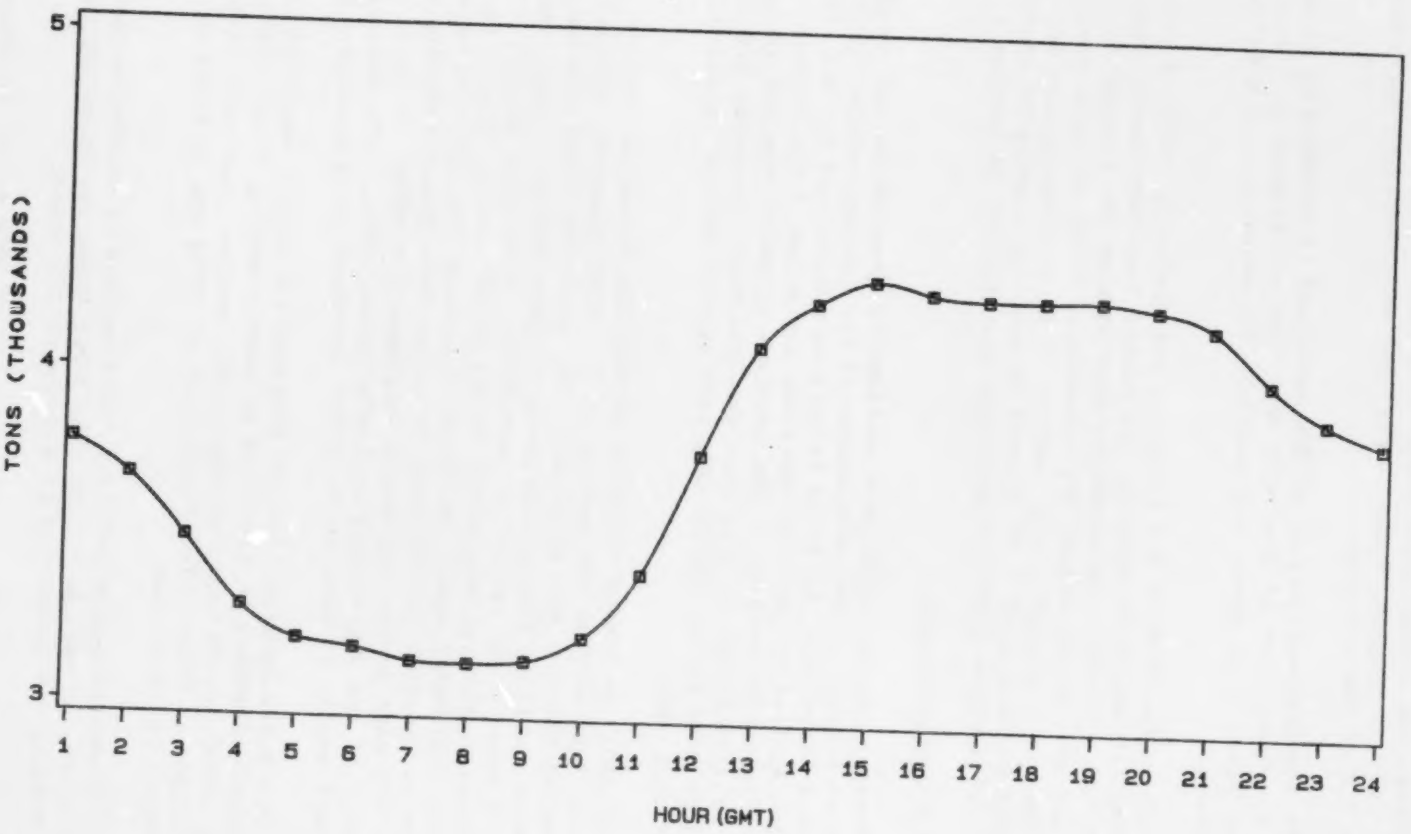


Figure 4. 1980 NAPAP Emissions Inventory Verison 5.2 - hourly emissions pattern for $SO_2$ for a typical summer weekday.

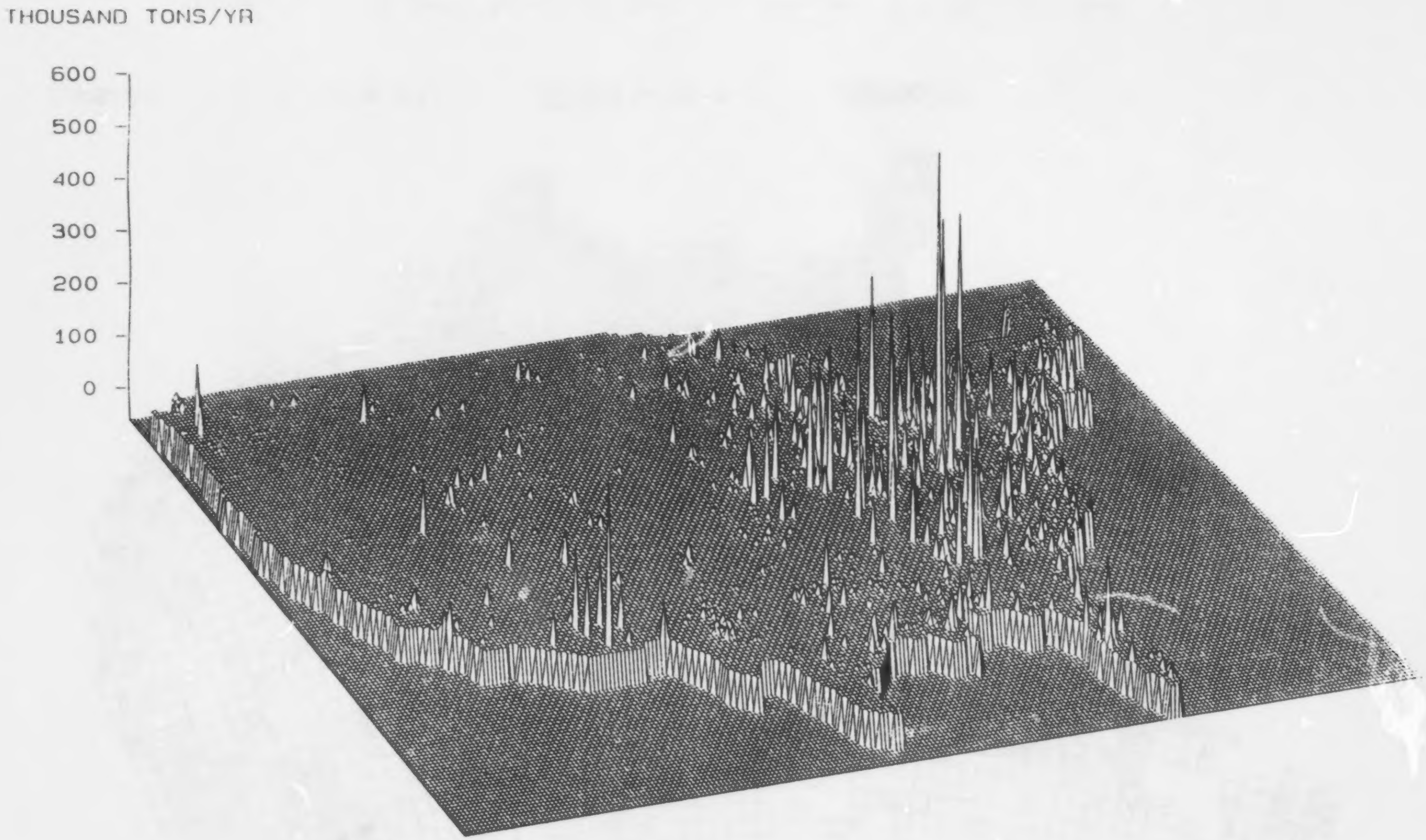


Figure 5. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. point and area sources.

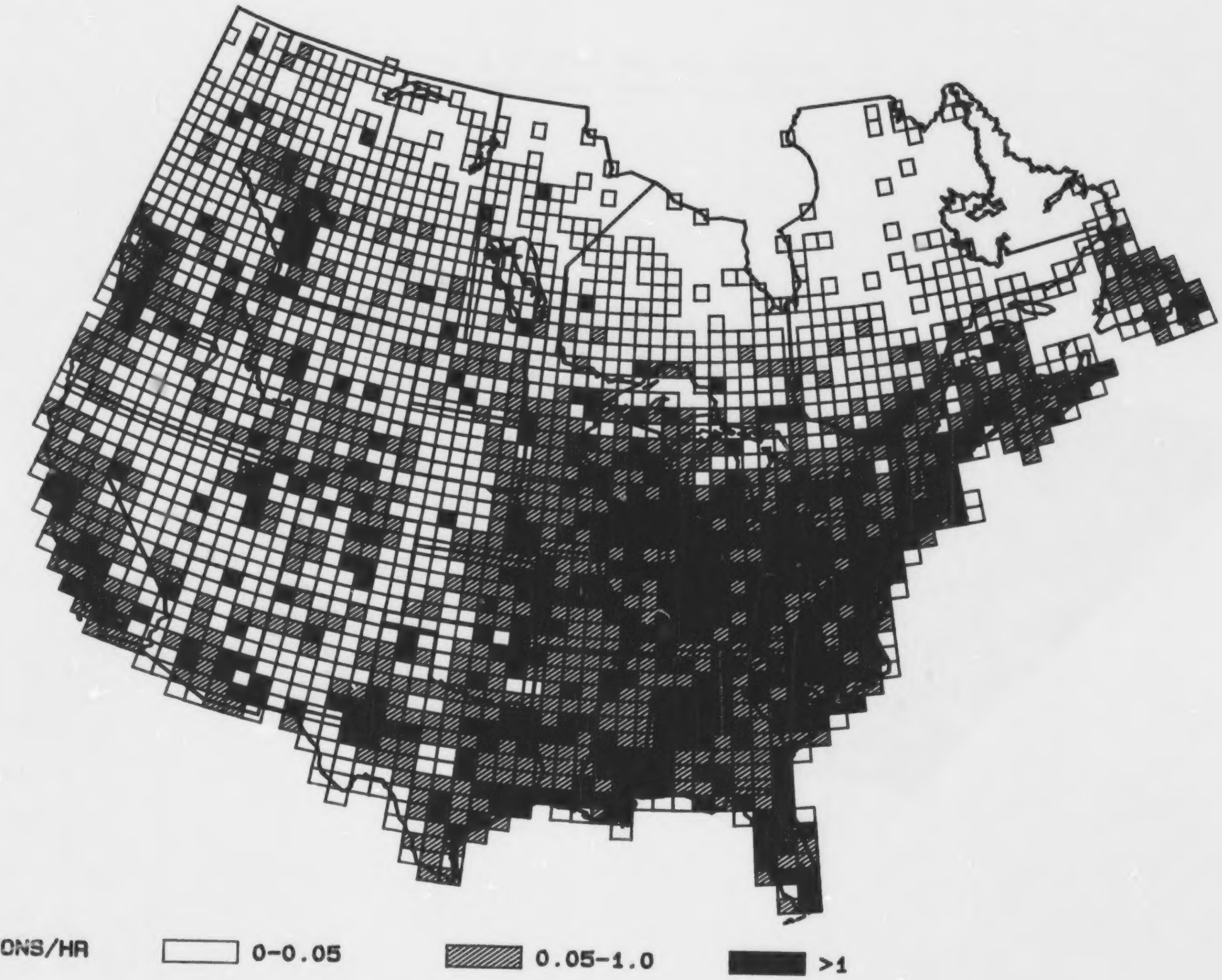

TONS/HR
0-0.05
0.05-1.0
>1

Figure 6. 1980 NAPAP Emissions Inventory Version 5.2 - $SO_2$ emissions for a typical summer weekday at 1700 GMT.

TABLE 3. NAPAP VERSION 5 PRODUCTS

| | Version | Description | Temporal resolution |
|---|---|---|---|
| A | 5.0/5.2/5.3 | Development of the 1980 NAPAP Emissions Inventory (Report) | |
| B | 5.0 (Tape) | U.S. Point Sources | Annual |
| C | | Canada Point Sources | Annual |
| D-1 | | U.S. Area Sources (Volume 1 of 3) | Annual |
| D-2 | | U.S. Area Sources (Volume 2 of 3) | Annual |
| D-3 | | U.S. Area Sources (Volume 3 of 3) | Annual |
| E | | Canada Area Sources | Annual |
| F | 5.2 (Tape) | Point Sources | Hourly |
| G-1 | | **Area Sources (West) - Winter Weekday | Hourly |
| G-2 | | Area Sources (East) - Winter Weekday | Hourly |
| H-1 | | Area Sources (West) - Winter Saturday | Hourly |
| H-2 | | Area Sources (East) - Winter Saturday | Hourly |
| I-1 | | Area Sources (West) - Winter Sunday | Hourly |
| I-2 | | Area Sources (East) - Winter Sunday | Hourly |
| J-1 | | Area Sources (West) - Spring Weekday | Hourly |
| J-2 | | Area Sources (East) - Spring Weekday | Hourly |
| K-1 | | Area Sources (West) - Spring Saturday | Hourly |
| K-2 | | Area Sources (East) - Spring Saturday | Hourly |
| L-1 | | Area Sources (West) - Spring Sunday | Hourly |
| L-2 | | Area Sources (East) - Spring Sunday | Hourly |
| M-1 | | Area Sources (West) - Summer Weekday | Hourly |
| M-2 | | Area Sources (East) - Summer Weekday | Hourly |
| N-1 | | Area Sources (West) - Summer Saturday | Hourly |
| N-2 | | Area Sources (East) - Summer Saturday | Hourly |
| O-1 | | Area Sources (West) - Summer Sunday | Hourly |
| O-2 | | Area Sources (East) - Summer Sunday | Hourly |
| P-1 | | Area Sources (West) - Fall Weekday | Hourly |
| P-2 | | Area Sources (East) - Fall Weekday | Hourly |
| Q-1 | | Area Sources (West) - Fall Saturday | Hourly |
| Q-2 | | Area Sources (East) - Fall Saturday | Hourly |
| R-1 | | Area Sources (West) - Fall Sunday | Hourly |
| R-2 | | Area Sources (East) - Fall Sunday | Hourly |

*Data on all tapes are in EBCDIC characters.

**Area Sources are divided into 2 regions separated at 100°W longitude.

(continued)

TABLE 3 (continued)

| | Version | Description | Temporal resolution |
|---|---|---|---|
| S | 5.3 (Tape) | Point Sources | Hourly |
| T-1 | | **Area Sources (West) - Winter Weekday | Hourly |
| T-2 | | Area Sources (East) - Winter Weekday | Hourly |
| U-1 | | Area Sources (West) - Winter Saturday | Hourly |
| U-2 | | Area Sources (East) - Winter Saturday | Hourly |
| V-1 | | Area Sources (West) - Winter Sunday | Hourly |
| V-2 | | Area Sources (East) - Winter Sunday | Hourly |
| W-1 | | Area Sources (West) - Spring Weekday | Hourly |
| W-2 | | Area Sources (East) - Spring Weekday | Hourly |
| X-1 | | Area Sources (West) - Spring Saturday | Hourly |
| X-2 | | Area Sources (East) - Spring Saturday | Hourly |
| Y-1 | | Area Sources (West) - Spring Sunday | Hourly |
| Y-2 | | Area Sources (East) - Spring Sunday | Hourly |
| Z-1 | | Area Sources (West) - Summer Weekday | Hourly |
| Z-2 | | Area Sources (East) - Summer Weekday | Hourly |
| AA-1 | | Area Sources (West) - Summer Saturday | Hourly |
| AA-2 | | Area Sources (East) - Summer Saturday | Hourly |
| BB-1 | | Area Sources (West) - Summer Sunday | Hourly |
| BB-2 | | Area Sources (East) - Summer Sunday | Hourly |
| CC-1 | | Area Sources (West) - Fall Weekday | Hourly |
| CC-2 | | Area Sources (East) - Fall Weekday | Hourly |
| DD-1 | | Area Sources (West) - Fall Saturday | Hourly |
| DD-2 | | Area Sources (East) - Fall Saturday | Hourly |
| EE-1 | | Area Sources (West) - Fall Sunday | Hourly |
| EE-2 | | Area Sources (East) - Fall Sunday | Hourly |

*Data on all tapes are in EBCDIC characters.

**Area Sources are divided into 2 regions delineated by 100°W longitude.

# SECTION 1

# INTRODUCTION

## BACKGROUND

The National Acid Precipitation Assessment Program (NAPAP) was established by Congress in 1980 to coordinate and expand research on problems posed by acid deposition in and around the United States. The program is managed through the Interagency Task Force on Acid Precipitation which coordinates eight task groups having specific technical responsibilities. The Task Group on Emissions and Controls is charged with development of comprehensive and accurate inventories of emissions from sources thought to be important in acid deposition processes. To fulfill its stated objective and to support other related NAPAP research, the Task Group on Emissions and Controls has generated a number of major emissions data bases. This report focuses on the development of Version 5.0 of the 1980 NAPAP Annual Emissions Inventory and the related Version 5.2 and 5.3 Modeling Emissions Inventories.

## OBJECTIVES

The primary focus of the 1980 NAPAP Emissions Inventory is the fulfillment of the emissions data requirements for development and testing of the Eulerian Regional Acid Deposition Model (RADM). Within EPA's Office of Research and Development, the Atmospheric Sciences Research Laboratory (ASRL) has been assigned lead responsibility for developing the RADM. The National Center for Atmospheric Research (NCAR) has been assigned the task of developing the model framework, which includes a number of chemical transformation modules. Since the RADM reflects the most extensive data requirements of the anticipated applications of the NAPAP Emissions Inventory, the specific requirements of the modules dictate the chemical species contained in Version 5.2 of the NAPAP Emissions Inventory.

Subsequent to the definition of the requirements of the NAPAP Version 5.2 Emissions Inventory, EPA expressed its need for emissions data to support applications of the Regional Oxidant Model (ROM), which requires hydrocarbon speciation data consistent with Carbon Bond IV chemistry. Version 5.3 of the 1980 NAPAP Emissions Inventory was developed to meet the modelers' needs.

The NAPAP Emissions Inventory data will also support certain NAPAP assessment activities. The emissions inventory needs for assessment purposes are generally less detailed and resource-intensive than those required by the modelers, but are nonetheless extremely important to the overall NAPAP program. Assessment projects use more aggregated emissions information in combination with models or other analytical techniques to evaluate the relative importance of various pollutants, regions, and types of sources to the acid deposition problem. Results of these studies have implications for planning additional research needed and development of potential control/mitigation strategies.

## 1980 NAPAP EMISSIONS INVENTORY

Versions 5.0, 5.2, and 5.3 of the 1980 NAPAP Emissions Inventory used as their bases earlier versions (4.0 and 4.2) of the inventory. Compilation and development of the current inventory required the integration of several unique but related work efforts, as shown in Figure 1-1. The contents of the primary products of this effort, Versions 5.0, 5.2, and 5.3, are described in Table 1-1. Both Volatile Organic Compounds (VOC) and Total Hydrocarbons (THC) are present in the inventory; the VOC category is defined as reactive hydrocarbon species (no methane or ethane), while THC is comprised of both reactive and nonreactive species.

The 1980 NAPAP Emissions Inventory, representing the most comprehensive and highest quality emissions data available for the 1980 base year, evolved from EPA's National Emissions Data System (NEDS) 1980 "snapshot" inventory. A number of updates were made to enhance the quality and comprehensiveness of the NEDS data. These included substitution of specific data items with information from other inventories or data bases believed to be more reliable. Since NAPAP requires emissions data for a number of pollutants not included in NEDS, emission factors and corresponding emissions estimates had to be developed and incorporated. Emissions data from Canada were added, and improvements were made to methods used to calculate area source and highway vehicle emissions.

Recognizing the importance of the utility industry in the estimation of both current and future emissions levels, NAPAP has developed a single data base designed to address utility-related data needs of all NAPAP task groups (Pechan, 1983). The NAPAP Utility Reference File (NURF) consists of four component files: the master unit data file (containing information on all electric generating units), the fuel-specific emissions file (containing emissions information by fuel type), the stack parameters file (containing stack information on a unit-specific basis), and the announced unit file (containing unit-specific information on units coming on-line or converting to coal-firing after 1980). The NURF was utilized to derive and verify emissions data from the utility sector in Version 5.0 of the NAPAP Emissions Inventory.

To support development and testing of the models, one of the most extensive applications of the NAPAP Emissions Inventory, the 1980 Annual Inventory (Version 5.0) had to be resolved temporally, spatially, and by component species to create an Eulerian modeling emissions inventory (Version 5.2) and an oxidant modeling emissions inventory (Version 5.3). Annual emissions were allocated to the hourly level for a typical weekday, Saturday, and Sunday in each season (12 temporal scenarios); county-level area sources and major and minor point sources were spatially resolved to modeling

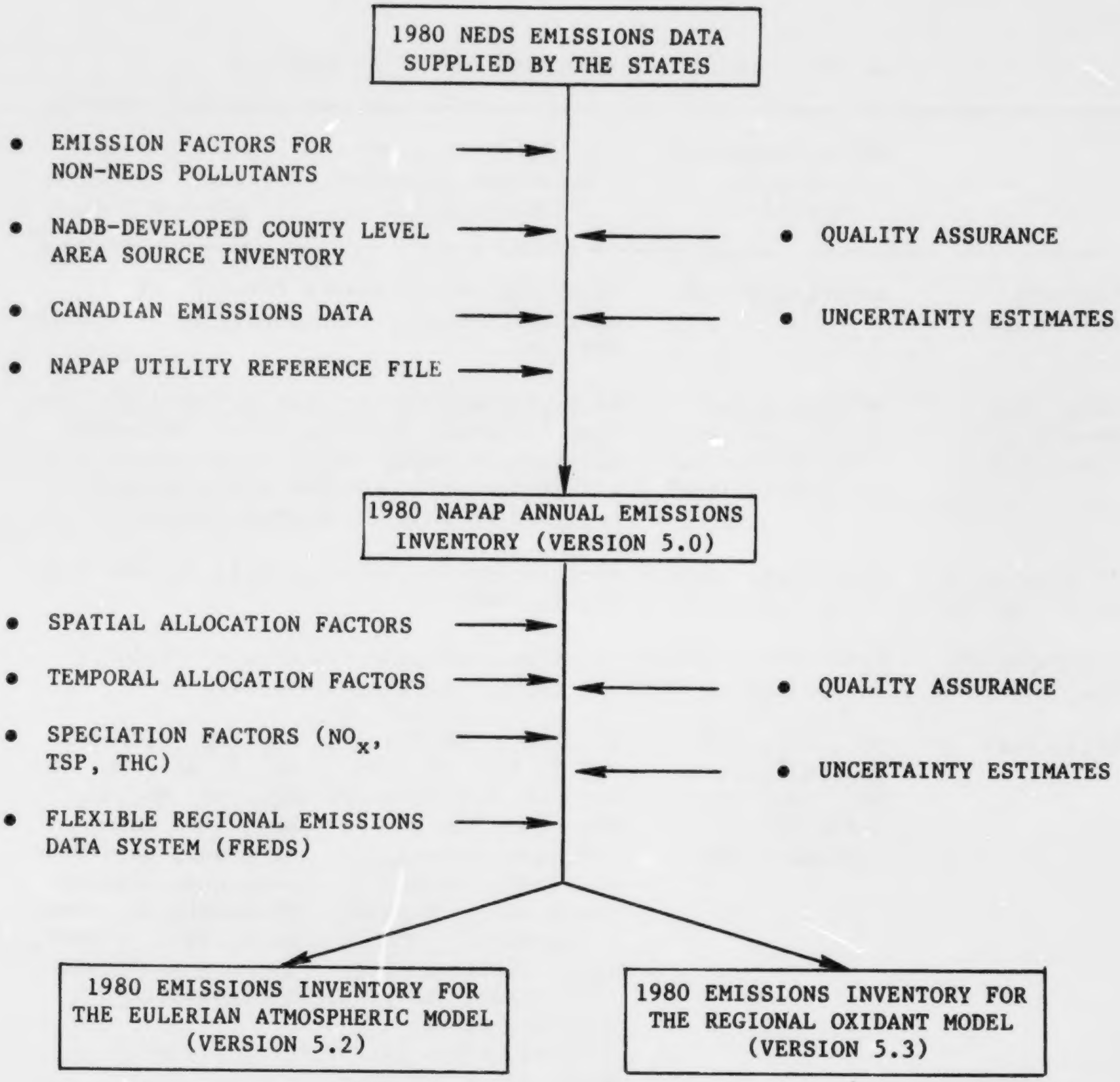

1980 NEDS EMISSIONS DATA SUPPLIED BY THE STATES
• EMISSION FACTORS FOR NON-NEDS POLLUTANTS
• NADB-DEVELOPED COUNTY LEVEL AREA SOURCE INVENTORY
• CANADIAN EMISSIONS DATA
• NAPAP UTILITY REFERENCE FILE
• QUALITY ASSURANCE
• UNCERTAINTY ESTIMATES
1980 NAPAP ANNUAL EMISSIONS INVENTORY (VERSION 5.0)
• SPATIAL ALLOCATION FACTORS
• TEMPORAL ALLOCATION FACTORS
• SPECIATION FACTORS ($NO_x$, TSP, THC)
• FLEXIBLE REGIONAL EMISSIONS DATA SYSTEM (FREDS)
• QUALITY ASSURANCE
• UNCERTAINTY ESTIMATES
1980 EMISSIONS INVENTORY FOR THE EULERIAN ATMOSPHERIC MODEL (VERSION 5.2)
1980 EMISSIONS INVENTORY FOR THE REGIONAL OXIDANT MODEL (VERSION 5.3)

Figure 1-1. Major program components for developing the 1980 NAPAP emissions inventory.

TABLE 1-1. 1980 NAPAP EMISSIONS INVENTORY COVERAGE

| | Annual Emissions Inventory Version 5.0 | Eulerian Model Emissions Inventory Version 5.2 | Oxidant Model Emissions Inventory Version 5.3 |
|---|---|---|---|
| Temporal resolution | Annual/seasonal | Hourly emissions values for typical weekday, Saturday, and Sunday for all four seasons | |
| Geographic domain and resolution | 48 contiguous states and Canada; area sources at the county level | 48 states and Canada from 50° to 125° west longitude and from 25° to 60° north latitude; separate major point source file with minor point sources and area sources assigned to 20 x 20 km grid cells | |
| Anthropogenic point sources | Stationary sources emitting greater than or equal to 100 tons of criteria pollutants in 1980 | | |
| Anthropogenic area sources | Stationary sources emitting less than 100 tons of criteria pollutants in 1980 and county-level area sources | | |
| Pollutants | $SO_2$, $SO_4$, TSP, Pb, CO, HCl, HF, $NO_x$, $NH_3$, VOC, total hydrocarbons (THC) | $SO_2$, $SO_4$, TSP (Ca, Mg, K, Na), Pb, CO, HCl, HF, NO, $NO_2$, $NH_3$, VOC, THC (methane, ethane, ethylene, propane, propylene, N-butane, 1,2-butane, isobutene, pentane, isopentane, other alkenes, other alkanes, other organic acids, formaldehyde, acetaldehyde, acetone, other ketones, other aldehydes, xylene, benzene, toluene, ethylbenzene, other aromatics) | $SO_2$, $SO_4$, TSP (Ca, Mg, K, Na), Pb, CO, HCl, HF, NO, $NO_2$, $NH_3$, VOC, THC (methane, paraffins, ethylene, olefins, formaldehyde, other aldehydes, toluene, xylene, isoprene, nonreactives) |

grid cells; TSP emissions were assigned to alkalinity classes; $NO_x$ emissions were split into NO and $NO_2$ constituents; and THC emissions were apportioned into as many as 28 photochemical reactivity classes.

To create the 1980 NAPAP Modeling Emissions Inventories, temporal, spatial, and pollutant species allocation factors were developed and applied to the Version 5.0 data base. In addition to creating allocation factors to address the requirements of the models, a data handling system capable of creating subsequent versions of the NAPAP Emissions Inventory was developed. The Flexible Regional Emissions Data System (FREDS), consisting of five primary independent subsystems written in the command language of the Statistical Analysis System (SAS), was used to preprocess the Emissions Inventory System (EIS) formatted emissions data for input to the RADM. FREDS was also used to generate a SAS version of the 5.0 NAPAP Emissions Inventory for incorporation into the Acid Deposition Data Network (ADDNET).

To be able to evaluate the results of the NAPAP modeling and assessment analyses, it was necessary to estimate the uncertainty associated with the NAPAP Emissions Inventory data. The analysis of uncertainty, while important for all NAPAP Emissions Inventory applications, is particularly crucial for the atmospheric modeling efforts aimed at establishing relationships between the release of precursor emissions and acid deposition. The degree of uncertainty in the emissions inventory will be a limiting factor in the quantification of these relationships.

NAPAP has developed a methodology for quantifying the degree of uncertainty associated with the NAPAP emissions data (Benkovitz, 1985). Ongoing NAPAP efforts are developing uncertainty estimates for the individual parameters that will be input to the NAPAP uncertainty methodology. To enable development of preliminary estimates of uncertainty within the 1980 NAPAP Emissions Inventory prior to completion of these efforts, a NAPAP Emissions Inventory Uncertainty Workshop was held (Homolya, 1985). At that workshop a panel was assembled to develop a consensus regarding the uncertainty associated with parameters used to calculate annual emissions and resolve them in space, in time, and by pollutant species. Based on these uncertainty estimates, the methodology was tested and preliminary estimates of emissions uncertainties were derived and documented in an EPA report (Wagner, et al., 1986).

## REPORT ORGANIZATION

Section 2 summarizes emissions data from Version 5.0 and Version 5.2 of the 1980 NAPAP Emissions Inventory. A discussion of the evolution of the 1980 NAPAP Emissions Inventories is presented in Section 3. Section 4 describes the formulation of emission factors used to derive estimates of emissions of hydrogen chloride (HCl), hydrogen fluoride (HF), ammonia ($NH_3$), primary sulfate ($SO_4$), and alkaline dust. The development of emissions estimates for the utility sector is discussed in Section 5. The development of temporal, spatial, and pollutant species allocation factors required to generate the modeling emissions inventories is covered in Section 6. Section 7 discusses the creation of the data handling system used to process Version 5.0 and create Version 5.2 and 5.3 of the 1980 NAPAP Emissions Inventory.

# SECTION 2

# OVERVIEW OF EMISSIONS DATA

The following pages present summary data from Version 5 of the 1980 NAPAP Emissions Inventory in tabular and graphic form. The Version 5.0 inventory contains annual point source emissions data for over 14,000 plants in the United States and Canada, encompassing more than 36,000 emissions points. It also contains area source data for the 3,070 counties in the 48 contiguous United States and the District of Columbia, as well as province level data from Canada south of 60° latitude and east of 125° longitude. The Version 5.2 Eulerian Modeling Inventory covers a similar study area, providing additional temporal, spatial, and species resolution.

## VERSION 5.0

### Summary of Total Emissions

Table 2-1 summarizes emissions for the 11 pollutants in the Version 5.0 inventory by EPA Region. Both Volatile Organic Compounds (VOC) and Total Hydrocarbon (THC) categories are present in the inventory; the VOC category is defined as reactive hydrocarbon species (no methane or ethane), while THC is comprised of both reactive and nonreactive species. Region 5 is the most significant contributor in 7 of the 11 categories, while Region 6 contributes the most $NO_x$ and TSP emissions. Region 4 is also a significant source of emissions, leading all regions in sulfate and hydrogen fluoride; the 14 states in Regions 4 and 5 contribute over half the inventory's $SO_2$ emissions.

The data in Table 2-1 are further subdivided by state in Table 2-2. In nearly all categories, Ohio (most $SO_2$), Texas (most $NO_x$ and TSP), and California (most CO and VOC) contribute significantly to U.S. emission totals.

Canadian emissions data are summarized at the province level in Table 2-3. It should be noted at the outset that Canadian data do not include emissions of chloride, fluoride and lead, and that Canadian emissions reported include only that portion of Canada within the NAPAP study area and therefore do not constitute total national emissions. Emissions for all Canadian provinces are available from Environment Canada. Ontario is clearly the largest emissions source, leading in emissions of $SO_2$, $NO_x$, CO, VOC, and total hydrocarbons, while Alberta contributes more ammonia and TSP than any other province.

TABLE 2-1. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - ANNUAL U.S. POINT AND AREA SOURCE EMISSIONS BY EPA REGION

| EPA REGION | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | |
| REGION 1 | 685,936 | 41,953 | 596,578 | 1,415 | 4,703,212 | 3,847 | 215 | 2,470 | 657,426 | 1,185,538 | 1,274,058 |
| REGION 2 | 1,180,163 | 63,920 | 1,154,353 | 1,979 | 7,052,898 | 11,835 | 2,208 | 14,042 | 1,204,930 | 1,857,619 | 2,016,830 |
| REGION 3 | 3,858,772 | 126,506 | 2,234,725 | 3,748 | 9,526,520 | 86,787 | 13,285 | 40,660 | 2,573,135 | 2,210,510 | 2,360,328 |
| REGION 4 | 6,473,217 | 206,358 | 3,978,083 | 5,199 | 16,253,808 | 130,211 | 48,740 | 135,784 | 5,088,856 | 4,075,244 | 4,316,670 |
| REGION 5 | 7,867,419 | 202,874 | 4,467,218 | 8,105 | 18,753,223 | 165,692 | 27,076 | 205,228 | 5,286,234 | 4,414,825 | 4,805,098 |
| REGION 6 | 2,179,556 | 113,688 | 4,957,327 | 3,573 | 15,437,049 | 35,964 | 10,851 | 133,234 | 9,727,381 | 3,537,629 | 3,847,014 |
| REGION 7 | 1,973,687 | 45,243 | 1,541,904 | 1,725 | 4,993,826 | 44,940 | 5,768 | 176,547 | 7,049,162 | 1,285,770 | 1,409,712 |
| REGION 8 | 793,365 | 54,576 | 1,065,188 | 1,485 | 6,096,071 | 28,165 | 3,765 | 55,581 | 5,204,444 | 1,005,242 | 1,073,957 |
| REGION 9 | 1,512,034 | 73,455 | 1,743,576 | 3,116 | 11,356,048 | 12,963 | 1,676 | 44,639 | 3,297,549 | 2,564,528 | 2,785,895 |
| REGION 10 | 429,988 | 47,035 | 613,287 | 1,387 | 5,136,282 | 6,120 | 1,850 | 30,479 | 2,528,253 | 1,027,643 | 1,087,898 |
| Contig. U.S. | 26,954,136 | 975,608 | 22,352,239 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 23,164,547 | 24,977,459 |

# TABLE 2-2. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - ANNUAL U.S. POINT AND AREA SOURCE EMISSIONS BY STATE

TONS/YEAR

| State | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 857,549 | 32,991 | 487,256 | 681 | 1,811,119 | 19,542 | 3,539 | 11,964 | 439,271 | 391,455 | 425,591 |
| Arizona | 844,078 | 30,871 | 263,894 | 366 | 1,310,433 | 8,937 | 1,087 | 11,921 | 841,489 | 254,096 | 271,243 |
| Arkansas | 87,127 | 10,478 | 211,143 | 264 | 1,045,560 | 1,786 | 1,445 | 25,418 | 874,245 | 223,135 | 234,377 |
| California | 519,799 | 35,917 | 1,382,764 | 2,643 | 9,524,250 | 472 | 145 | 32,013 | 1,536,414 | 2,216,485 | 2,414,927 |
| Colorado | 140,138 | 9,347 | 304,778 | 756 | 2,302,185 | 9,110 | 1,186 | 24,987 | 1,134,995 | 356,946 | 385,554 |
| Connecticut | 63,665 | 8,110 | 139,750 | 381 | 1,192,328 | 491 | 0 | 1,946 | 120,226 | 284,183 | 299,090 |
| Delaware | 124,669 | 4,645 | 62,266 | 71 | 242,885 | 1,152 | 184 | 2,051 | 49,382 | 77,101 | 81,188 |
| Dist. of Colum. | 15,325 | 1,121 | 25,352 | 39 | 338,780 | 655 | 23 | 59 | 15,099 | 44,081 | 48,400 |
| Florida | 1,102,994 | 30,793 | 712,209 | 1,087 | 4,071,755 | 8,834 | 29,228 | 28,793 | 919,841 | 828,561 | 868,694 |
| Georgia | 900,080 | 30,684 | 590,650 | 697 | 2,335,826 | 20,453 | 2,503 | 35,359 | 882,031 | 508,361 | 530,222 |
| Idaho | 56,210 | 8,676 | 91,874 | 548 | 1,280,507 | 329 | 242 | 8,133 | 330,728 | 222,050 | 230,398 |
| Illinois | 1,464,520 | 42,270 | 972,987 | 2,635 | 4,246,797 | 34,318 | 7,937 | 68,633 | 932,702 | 988,586 | 1,092,842 |
| Indiana | 1,970,870 | 38,111 | 786,843 | 1,101 | 2,374,627 | 33,494 | 4,607 | 29,361 | 496,649 | 562,647 | 623,821 |
| Iowa | 334,278 | 11,010 | 305,754 | 427 | 1,105,666 | 11,505 | 1,706 | 80,410 | 1,237,845 | 237,157 | 258,603 |
| Kansas | 228,074 | 7,409 | 513,314 | 250 | 1,072,560 | 6,614 | 799 | 34,189 | 1,852,371 | 250,269 | 298,662 |
| Kentucky | 1,150,036 | 23,108 | 551,354 | 519 | 1,594,516 | 22,635 | 3,841 | 8,185 | 452,395 | 441,688 | 469,555 |
| Louisiana | 401,333 | 24,581 | 708,966 | 554 | 2,541,546 | 857 | 1,761 | 26,314 | 559,071 | 625,559 | 669,847 |
| Maine | 133,369 | 11,223 | 67,068 | 124 | 506,637 | 40 | 5 | 417 | 127,174 | 141,991 | 149,051 |
| Maryland | 303,471 | 10,727 | 261,103 | 456 | 1,459,780 | 6,559 | 1,307 | 2,992 | 227,611 | 363,270 | 394,420 |
| Massachusetts | 358,065 | 14,498 | 270,770 | 666 | 2,133,002 | 2,241 | 86 | 104 | 210,504 | 515,765 | 568,190 |
| Michigan | 841,399 | 32,609 | 715,377 | 1,148 | 3,613,069 | 22,871 | 3,150 | 10,433 | 880,263 | 916,363 | 987,380 |
| Minnesota | 238,705 | 14,535 | 366,630 | 469 | 1,928,665 | 8,820 | 1,120 | 48,624 | 1,199,026 | 469,214 | 496,094 |
| Mississippi | 303,846 | 11,281 | 294,511 | 297 | 991,881 | 2,599 | 314 | 7,809 | 587,204 | 261,800 | 278,672 |
| Missouri | 1,333,218 | 22,746 | 549,797 | 849 | 2,206,090 | 22,184 | 2,681 | 17,264 | 2,877,954 | 629,726 | 673,526 |
| Montana | 169,224 | 7,583 | 140,299 | 310 | 1,422,156 | 2,003 | 243 | 3,890 | 880,654 | 236,467 | 245,600 |
| Nebraska | 78,117 | 4,078 | 173,039 | 199 | 609,510 | 4,637 | 582 | 44,683 | 1,080,992 | 168,618 | 178,920 |
| Nevada | 148,157 | 6,667 | 96,918 | 107 | 521,365 | 3,554 | 444 | 705 | 919,646 | 93,948 | 99,725 |
| New Hampshire | 108,484 | 4,867 | 58,957 | 100 | 352,582 | 1,036 | 124 | 1 | 66,310 | 103,987 | 109,401 |
| New Jersey | 309,856 | 20,690 | 417,509 | 706 | 2,294,053 | 2,566 | 328 | 80 | 402,215 | 696,758 | 749,784 |
| New Mexico | 262,555 | 9,202 | 254,116 | 174 | 932,466 | 8,299 | 977 | 4,523 | 1,249,009 | 191,042 | 213,500 |
| New York | 870,307 | 43,230 | 736,844 | 1,273 | 4,758,845 | 9,269 | 1,880 | 13,961 | 802,715 | 1,160,860 | 1,267,046 |
| North Carolina | 655,591 | 31,046 | 532,675 | 727 | 2,289,334 | 23,667 | 3,310 | 21,118 | 700,462 | 614,002 | 655,149 |
| North Dakota | 115,391 | 11,574 | 136,091 | 72 | 282,219 | 119 | 60 | 6,642 | 1,295,268 | 53,274 | 58,166 |
| Ohio | 2,681,314 | 51,554 | 1,217,607 | 2,160 | 4,697,200 | 50,783 | 7,934 | 16,124 | 1,070,910 | 1,001,059 | 1,092,677 |
| Oklahoma | 104,168 | 9,558 | 453,066 | 412 | 1,854,007 | 5,765 | 768 | 15,266 | 1,107,180 | 324,988 | 347,352 |
| Oregon | 55,987 | 18,601 | 226,767 | 334 | 1,454,001 | 729 | 92 | 4,249 | 1,849,960 | 340,267 | 363,147 |
| Pennsylvania | 1,899,006 | 60,532 | 1,041,556 | 1,918 | 4,377,701 | 42,015 | 5,525 | 24,309 | 1,432,694 | 1,043,563 | 1,113,027 |
| Rhode Island | 14,168 | 1,491 | 36,253 | 82 | 316,586 | 27 | 0 | 0 | 32,323 | 81,042 | 86,846 |
| South Carolina | 344,968 | 17,550 | 278,092 | 459 | 1,207,907 | 9,045 | 1,648 | 4,440 | 451,493 | 474,791 | 501,073 |
| South Dakota | 40,863 | 3,798 | 79,356 | 70 | 509,495 | 235 | 38 | 12,941 | 715,996 | 95,639 | 101,160 |
| Tennessee | 1,158,153 | 28,905 | 531,336 | 732 | 1,951,470 | 23,436 | 4,357 | 18,117 | 656,159 | 554,586 | 587,715 |
| Texas | 1,324,373 | 59,869 | 3,330,036 | 2,169 | 9,063,470 | 19,257 | 5,900 | 61,713 | 5,937,876 | 2,172,905 | 2,381,939 |
| Utah | 116,615 | 8,886 | 155,757 | 191 | 990,051 | 3,588 | 511 | 1,961 | 690,811 | 160,449 | 172,386 |
| Vermont | 8,185 | 1,764 | 23,780 | 62 | 202,077 | 12 | 0 | 3 | 100,889 | 58,570 | 61,481 |
| Virginia | 370,780 | 21,579 | 383,434 | 646 | 2,322,403 | 7,328 | 1,385 | 10,913 | 466,354 | 527,715 | 561,508 |
| Washington | 317,791 | 19,758 | 294,646 | 505 | 2,401,774 | 5,062 | 1,516 | 18,097 | 347,565 | 465,326 | 494,352 |
| West Virginia | 1,145,522 | 27,902 | 461,014 | 618 | 784,971 | 29,078 | 4,861 | 335 | 381,995 | 154,780 | 161,785 |
| Wisconsin | 670,610 | 23,795 | 407,774 | 592 | 1,892,865 | 15,406 | 2,328 | 32,054 | 706,684 | 476,956 | 512,284 |
| Wyoming | 211,134 | 13,388 | 248,907 | 86 | 589,965 | 13,110 | 1,727 | 5,159 | 486,720 | 102,467 | 111,091 |
| Contig. U.S. | 26,954,136 | 975,608 | 22,352,239 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 23,164,547 | 24,977,459 |

## TABLE 2-3. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - ANNUAL CANADIAN POINT AND AREA SOURCE EMISSIONS BY PROVINCE

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alberta | 660,788 | 7,677 | 485,564 | 0 | 3,023,686 | 0 | 0 | 83,323 | 8,828,141 | 685,711 | 898,962 |
| British Columbia | 184,106 | 34,915 | 221,795 | 0 | 2,203,914 | 0 | 0 | 7,012 | 2,025,634 | 285,050 | 530,780 |
| Manitoba | 533,199 | 13,790 | 102,392 | 0 | 1,603,510 | 0 | 0 | 21,011 | 3,142,219 | 233,681 | 325,091 |
| New Brunswick | 223,053 | 14,963 | 58,760 | 0 | 347,965 | 0 | 0 | 1,024 | 415,749 | 51,010 | 114,009 |
| Newfoundland | 65,635 | 4,604 | 35,930 | 0 | 197,323 | 0 | 0 | 123 | 280,665 | 28,948 | 78,892 |
| Nova Scotia | 212,343 | 11,094 | 83,476 | 0 | 393,785 | 0 | 0 | 1,646 | 763,019 | 73,664 | 149,945 |
| Ontario | 1,954,125 | 45,947 | 563,749 | 0 | 4,424,186 | 0 | 0 | 46,260 | 6,604,382 | 733,251 | 1,482,757 |
| Prince Edward Island | 4,973 | 343 | 6,130 | 0 | 57,947 | 0 | 0 | 832 | 41,629 | 6,501 | 17,202 |
| Quebec | 1,210,291 | 50,699 | 321,999 | 0 | 2,409,711 | 0 | 0 | 16,564 | 2,491,946 | 390,108 | 946,493 |
| Saskatchewan | 60,125 | 4,250 | 174,217 | 0 | 3,373,897 | 0 | 0 | 31,879 | 6,980,762 | 505,957 | 593,482 |
| Canada | 5,108,638 | 188,282 | 2,054,012 | NR | 18,035,924 | NR | NR | 209,674 | 31,574,146 | 2,993,881 | 5,137,613 |

NR = NOT REPORTED

The relative weight of point and area source contribution to emissions varies from state to state and pollutant to pollutant. Appendix A provides additional resolution of point and area source emissions on the state/province and SCC level. Figure 2-1 illustrates graphically the relative contributions of point and area source emissions for $SO_2$, $NO_x$, and VOC. Sulfur dioxide, associated primarily with utilities and industrial operations, is heavily represented by point sources. VOC emissions are concentrated in the area sources, including the solvent use/evaporation and transportation categories. $NO_x$ represents a more even distribution between point and area sources, reflecting a relatively equal mix of industrial sources and vehicular transportation. Canadian emissions generally represent 10-20 percent of NAPAP totals, with Canadian area source TSP being a noteworthy exception (41 percent of NAPAP total). The relatively heavy TSP emissions in Canada reflect emissions estimation methodology differences between the two nations; attempts have been made to minimize these differences by removing from Canadian totals those area source categories having no U.S. counterparts, namely agricultural tilling, construction, and wind erosion. The distribution of Canadian emissions between point and area sources generally parallels U.S. data.

Table 2-4 illustrates $SO_2$, $NO_x$, and VOC emissions aggregated by major source categories. U.S. emissions of $SO_2$ are dominated by the electric utility sector (65 percent); the overwhelming majority of these emissions are from coal-fired external combustion boilers. Industrial combustion sources and manufacturing operations combine for another 25 percent of total U.S. $SO_2$ emissions. $NO_x$ emissions, as mentioned earlier, are fairly evenly distributed between combustion sources and vehicular transportation. Emissions of VOC are dominated by transportation and manufacturing operations, including solvent losses. Other sources, constituting about 13 percent of U.S. VOC totals, include forest fires and managed burning (1.2 million tons), gasoline marketed (950,000 tons), agricultural processes, and minor point sources, which are aggregated into a single area source category to facilitate processing (see Section 3 for details). Canadian sources are distributed in a similar fashion with one notable exception. A much higher percentage of Canadian $SO_2$ emissions is attributed to industrial/manufacturing operations than in the U.S. This is due primarily to the fact that nonferrous smelters contribute over one-third of total Canadian $SO_2$ emissions, a much larger percentage than in the United States. Forest fires and managed burning also contribute heavily to Canadian VOC emissions, accounting for over 1 million tons of VOC per year. Pie charts depicting the data in Table 2-4 are shown in Figures 2-2 and 2-3.

Though the 1980 NAPAP Emissions Inventory was based on NEDS data for base year 1980, information in the file was actually collected over a range of years from 1966 to 1982. The current distribution of U.S. and Canadian point and area source emissions by year of record, shown in Figure 2-4, represents a number of updates and improvements to the original NEDS data, particularly with regard to utility sources. These updates are discussed in Section 3. It should be noted that most identification and stack parameter data would not be expected to change on a yearly basis, and that annual throughputs remain fairly constant over the short term; therefore, data not associated with a 1980 year of record are not necessarily in error.

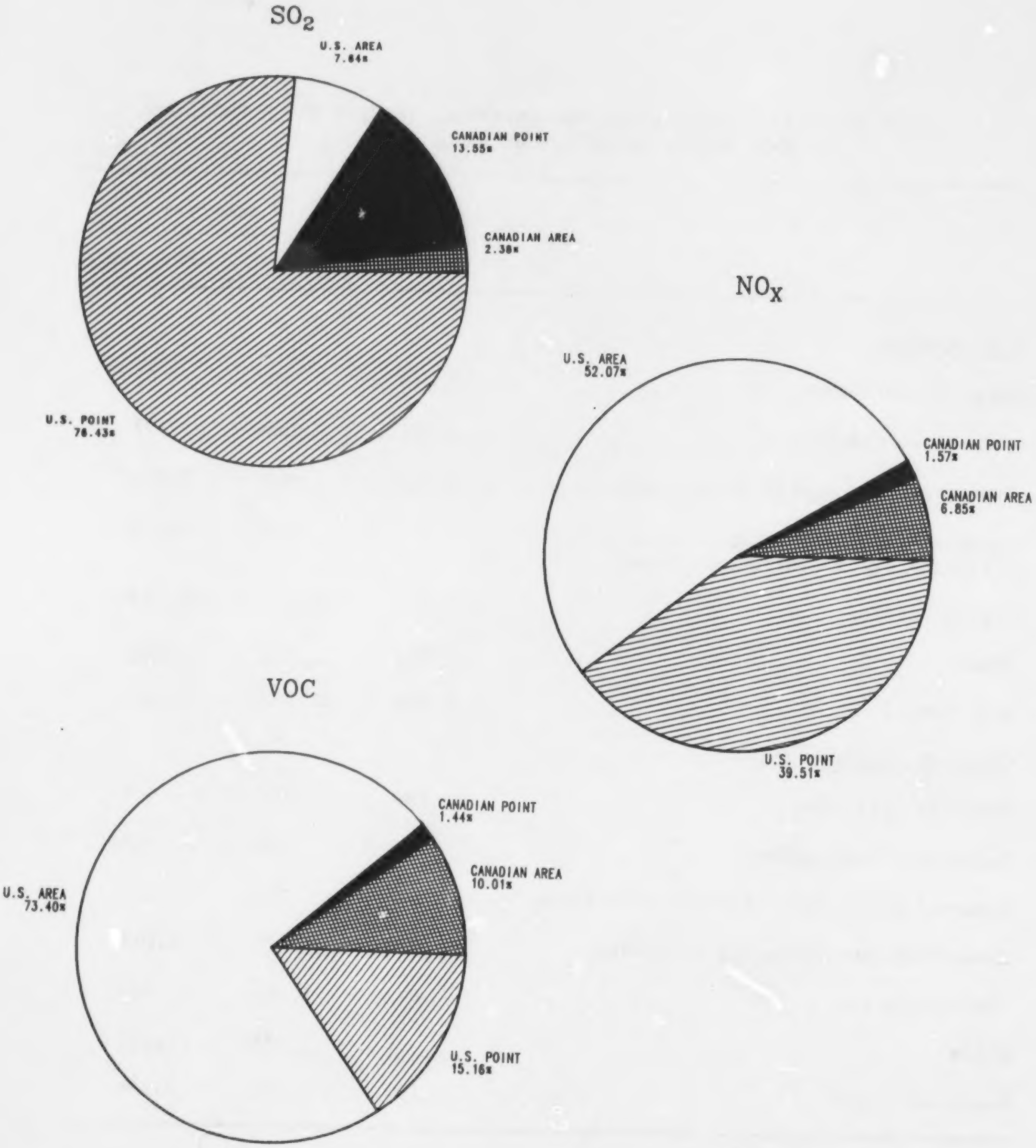


Figure 2-1. 1980 NAPAP Emissions Inventory Version 5.0 - relative distribution of point versus area source emissions for $SO_2$, $NO_x$, and VOC.

TABLE 2-4. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - POINT AND AREA SOURCE EMISSIONS BY MAJOR CATEGORY

| | Emissions ($10^3$ tons/yr) | | |
|---|---|---|---|
| | $SO_2$ | $NO_x$ | VOC |
| U.S. sources | | | |
| Electric utilities | 17,479 | 6,448 | 47 |
| Industrial combustion | 3,606 | 4,283 | 197 |
| Commercial/residential/other combustion | 1,153 | 1,061 | 2,563 |
| Industrial/manufacturing processes (including solvent evaporation) | 3,473 | 693 | 7,079 |
| Transportation | 879 | 9,266 | 10,348 |
| Other | 365 | 601 | 2,931 |
| U.S. Total: | 26,954 | 22,352 | 23,165 |
| Canadian sources | | | |
| Electric utilities | 849 | 249 | 6 |
| Industrial combustion | 610 | 146 | 4 |
| Commercial/residential/other combustion | 249 | 122 | 22 |
| Industrial/manufacturing processes | 3,250 | 179 | 1,018 |
| Transportation | 149 | 1,023 | 823 |
| Other | 1 | 335 | 1,120 |
| Canadian total: | 5,109 | 2,054 | 2,994 |

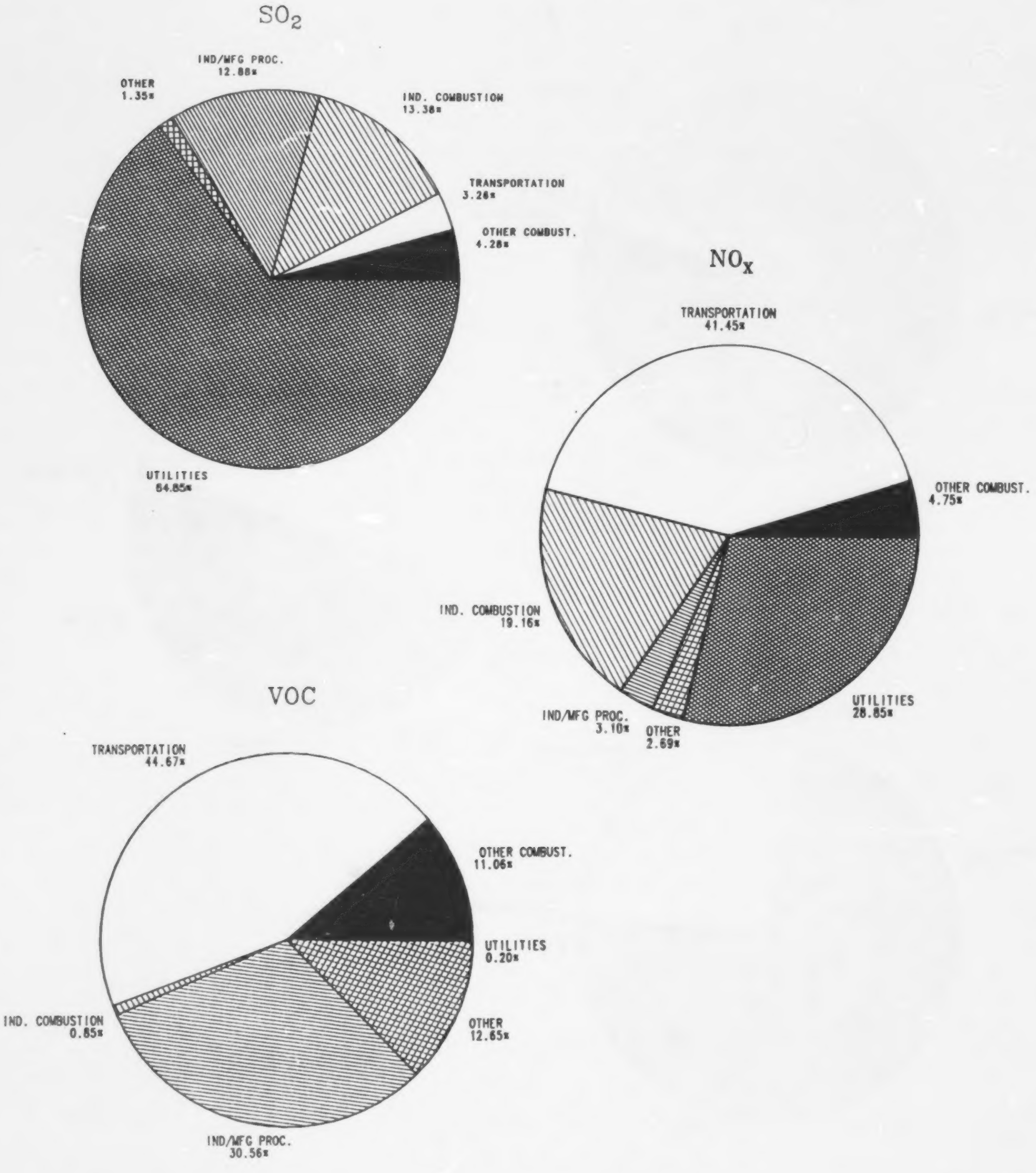


Figure 2-2. 1980 NAPAP Emissions Inventory Version 5.0 - distribution of U.S. emissions by source category for $SO_2$, $NO_x$ and VOC.

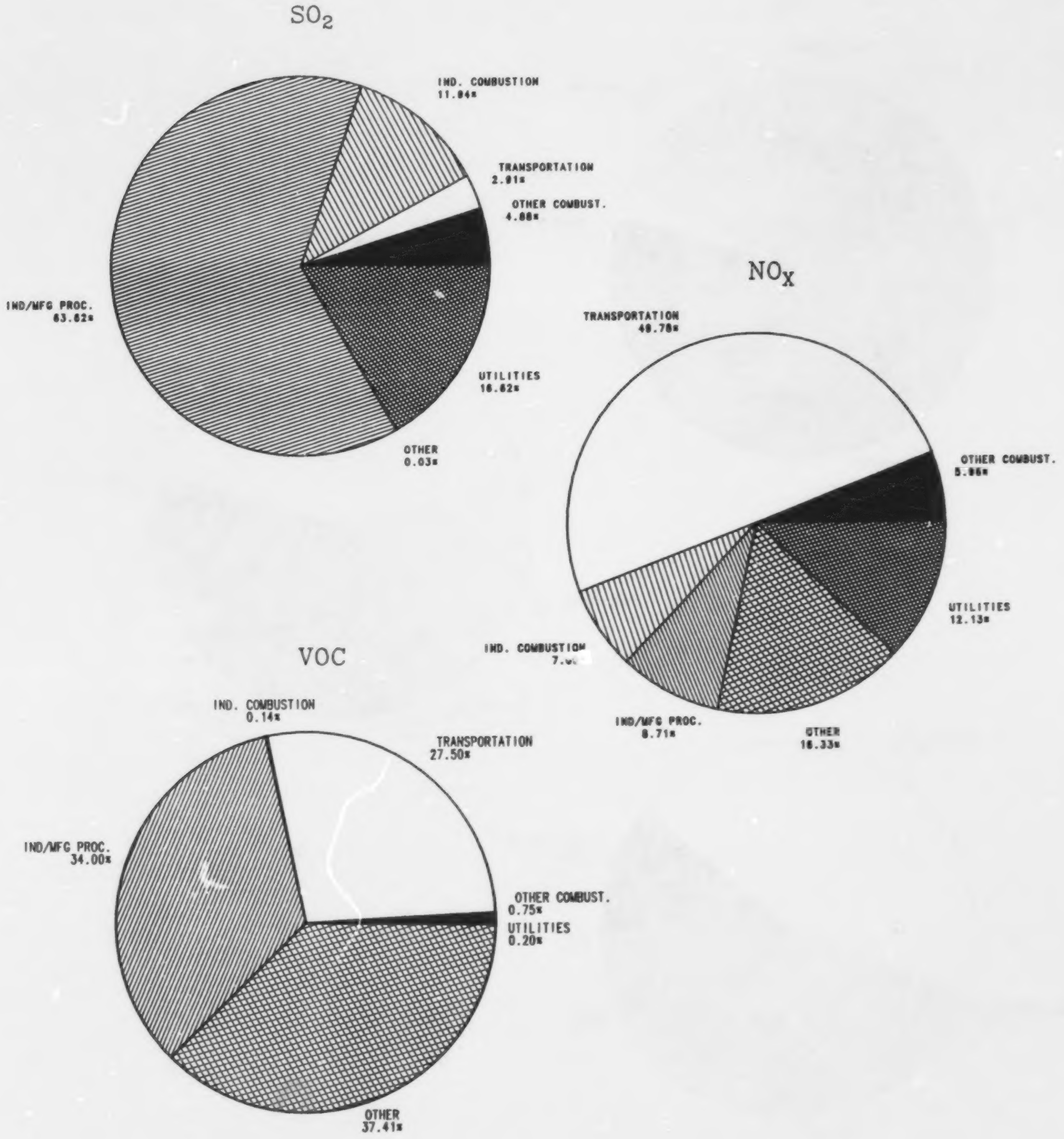


Figure 2-3. 1980 NAPAP Emissions Inventory Version 5.0 - distribution of Canadian emissions by source category for $SO_2$, $NO_x$ and VOC.

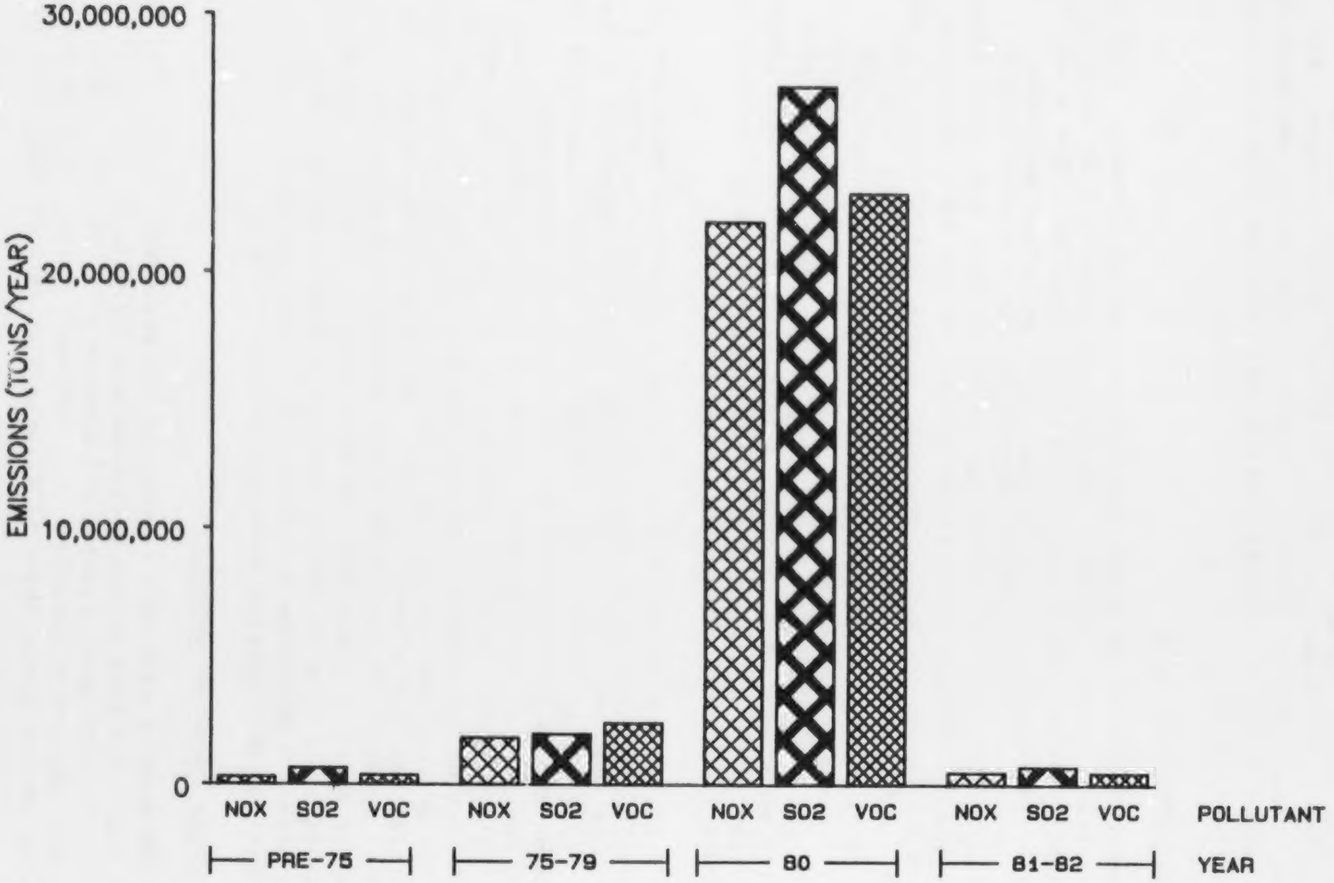


Figure 2-4. 1980 NAPAP Emissions Inventory Version 5.0 - combined U.S. and Canadian emissions totals by year of record.

Point and area source emissions percentages are tabulated by release height, an important modeling parameter, in Table 2-5. $SO_2$ emissions are dominated by point sources in the high stack height ranges; over 68 percent of $SO_2$ comes from stacks in excess of 240 feet in height. Again, these large stacks correspond to utilities, smelters, and other major emitters. VOC emissions are concentrated at the lowest release height range, representing fugitive solvent evaporation, transportation, and emissions from area sources to an overwhelming degree.

## Point-Specific Emissions Data

Point source data in the NAPAP inventory can be considered to exist on three levels--plant, point, and SCC. Each SCC, representing the greatest degree of disaggregation, represents a process or function within a source category logically associated with a point of air pollution emissions. Several SCC-level observations may be associated with a single "point"; similarly, several point-level records may exist for each individual plant. There are 52,904 SCC-level records in Version 5.0 of the NAPAP Emissions Inventory, corresponding to 36,807 individual points located in 14,244 unique plants. Table 2-6 presents a distribution of these sources by emissions range. Emissions of $SO_2$, and to a lesser degree $NO_x$, are concentrated within a small number of large emitters, such as utilities and smelters. VOC emissions, on the other hand, are distributed among a much larger number of proportionally minor emissions sources. A total of 225 plants emit greater than 25,000 tons of $SO_2$ annually; the locations of these major emitters are shown in Figure 2-5.

Figure 2-6 illustrates the distribution of point source emissions of $SO_2$, $NO_x$, and VOC by emissions estimation method. Estimation methods 3 and 5 constitute the vast majority of criteria pollutant emissions in the inventory. Utility source estimation methods were changed to 3 during the utility updates discussed in Section 3. Systematic QA checks also necessitated computer recalculation of emissions for many other sources; these methods were also changed to 3. In general, any estimation method other than 3 would provide (in theory) a better estimate of emissions than would method 3. The preponderance of method 3 emissions as shown in Figure 2-4 merely indicates that the states requested that OAQPS calculate emissions based on AP-42 emission factors in NEDS and reported operating data. $SO_2$ data for copper smelters taken from the Work Group 3B inventory and nonutility $NO_x$ and VOC emissions from the NECRMP modeling effort constitute the majority of method 5 emissions in the United States. In addition, all Canadian emissions are reported under estimation method 5.

## State and County Emissions Density

Emissions density maps were created on the state and county level by aggregating point and area source emissions and dividing by land area. The state emission density maps, Figures 2-7 through 2-17, provide a general geographic distribution of emissions on a statewide basis. Maps of emissions density at the county level, shown in Figures 2-18 through 2-22, provide a

TABLE 2-5. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - EMISSIONS PERCENTAGES BY EMISSIONS RELEASE HEIGHT (COMBINED U.S. AND CANADIAN SOURCES)

|  | Emissions percentages |  |  |
|---|---|---|---|
| Stack height range (ft) | $SO_2$ | $NO_x$ | VOC |
| 0-120 | 19.2 | 69.1 | 98.7 |
| 121-240 | 12.5 | 7.1 | 0.9 |
| 241-480 | 30.1 | 12.7 | 0.3 |
| >480 | 38.2 | 11.1 | 0.1 |
|  | 100.0 | 100.0 | 100.0 |
| Emissions Totals: ($10^3$ tons/year) | 32,063 | 24,406 | 26,158 |

## TABLE 2-6. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 - DISTRIBUTION OF $SO_2$, $NO_x$, AND VOC EMISSIONS POINT SOURCES BY SIZE RANGE

### NUMBER OF PLANT-LEVEL RECORDS

| EMISSIONS RANGE (TONS/YEAR) | SO2 | | | NOX | | | VOC | | |
|---|---|---|---|---|---|---|---|---|---|
| | US | CANADA | TOTAL | US | CANADA | TOTAL | US | CANADA | TOTAL |
| >10,000 | 418 | 50 | 468 | 224 | 6 | 230 | 54 | 3 | 57 |
| 2,500 - 10,000 | 595 | 65 | 660 | 513 | 23 | 536 | 277 | 42 | 319 |
| 1,000 - 2,500 | 598 | 61 | 659 | 582 | 33 | 615 | 411 | 20 | 431 |
| 100 - 1,000 | 2,118 | 109 | 2,227 | 2,624 | 138 | 2,762 | 2,971 | 103 | 3,074 |
| 0 - 100 | 9,950 | 280 | 10,230 | 9,736 | 365 | 10,101 | 9,966 | 397 | 10,363 |
| PLANT-LEVEL TOTAL: | 13,679 | 565 | 14,244 | 13,679 | 565 | 14,244 | 13,679 | 565 | 14,244 |

### NUMBER OF POINT-LEVEL RECORDS

| EMISSIONS RANGE (TONS/YEAR) | SO2 | | | NOX | | | VOC | | |
|---|---|---|---|---|---|---|---|---|---|
| | US | CANADA | TOTAL | US | CANADA | TOTAL | US | CANADA | TOTAL |
| >10,000 | 518 | 53 | 571 | 164 | 6 | 170 | 23 | 3 | 26 |
| 2,500 - 10,000 | 887 | 88 | 975 | 706 | 21 | 727 | 221 | 38 | 259 |
| 1,000 - 2,500 | 1,223 | 106 | 1,329 | 834 | 41 | 875 | 502 | 40 | 542 |
| 100 - 1,000 | 6,674 | 313 | 6,987 | 6,841 | 305 | 7,146 | 5,236 | 188 | 5,424 |
| 0 - 100 | 25,181 | 1,764 | 26,945 | 25,938 | 1,951 | 27,889 | 28,501 | 2,055 | 30,556 |
| POINT-LEVEL TOTAL: | 34,483 | 2,324 | 36,807 | 34,483 | 2,324 | 36,807 | 34,483 | 2,324 | 36,807 |

### NUMBER OF SCC-LEVEL RECORDS

| EMISSIONS RANGE (TONS/YEAR) | SO2 | | | NOX | | | VOC | | |
|---|---|---|---|---|---|---|---|---|---|
| | US | CANADA | TOTAL | US | CANADA | TOTAL | US | CANADA | TOTAL |
| >10,000 | 516 | 73 | 589 | 162 | 6 | 168 | 20 | 3 | 23 |
| 2,500 - 10,000 | 867 | 93 | 960 | 694 | 28 | 722 | 222 | 38 | 260 |
| 1,000 - 2,500 | 1,237 | 111 | 1,348 | 771 | 40 | 811 | 490 | 40 | 530 |
| 100 - 1,000 | 7,030 | 335 | 7,365 | 7,297 | 334 | 7,631 | 5,352 | 189 | 5,541 |
| 0 - 100 | 40,509 | 2,133 | 42,642 | 41,235 | 2,337 | 43,572 | 44,075 | 2,475 | 46,550 |
| SCC-LEVEL TOTAL: | 50,159 | 2,745 | 52,904 | 50,159 | 2,745 | 52,904 | 50,159 | 2,745 | 52,904 |

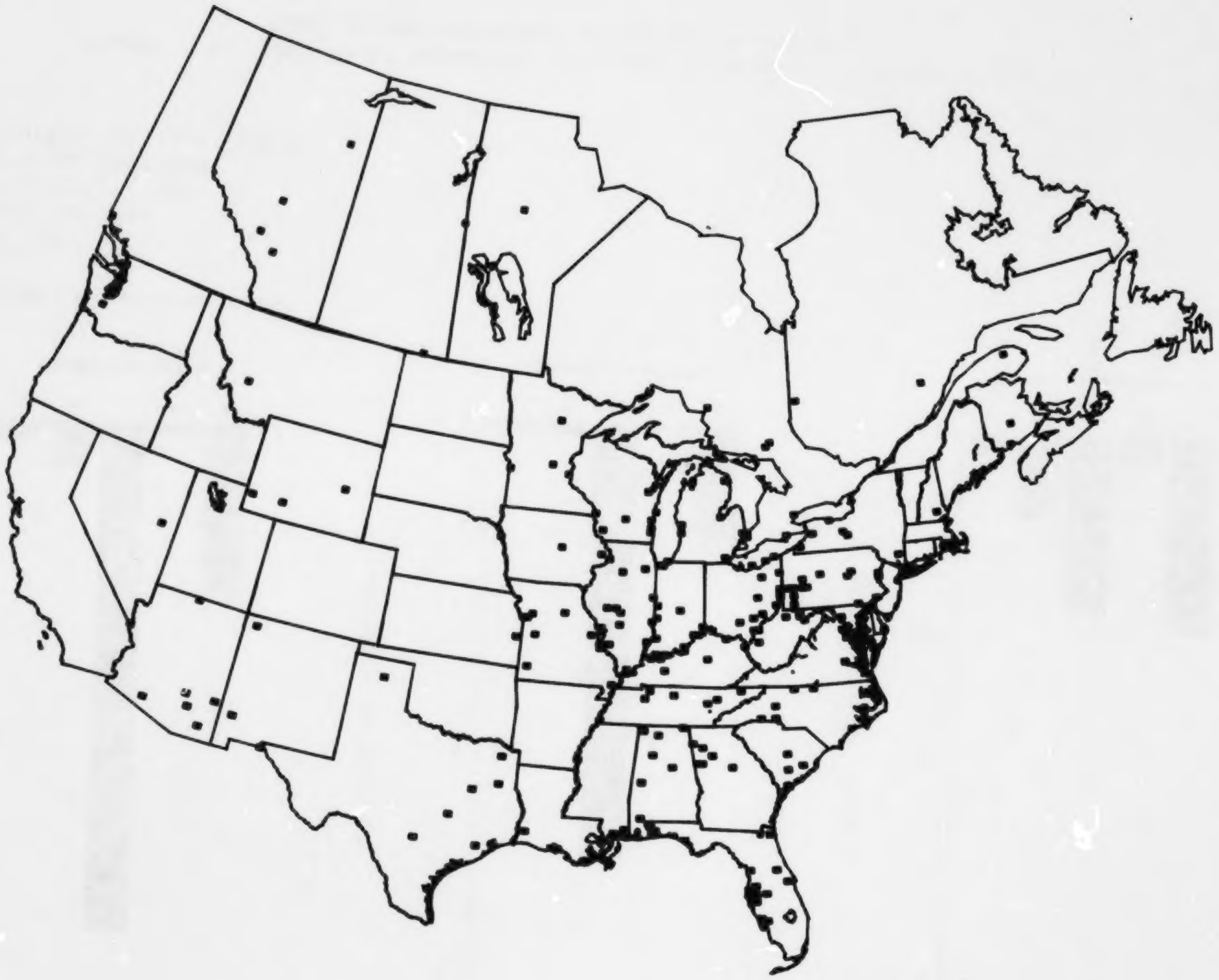
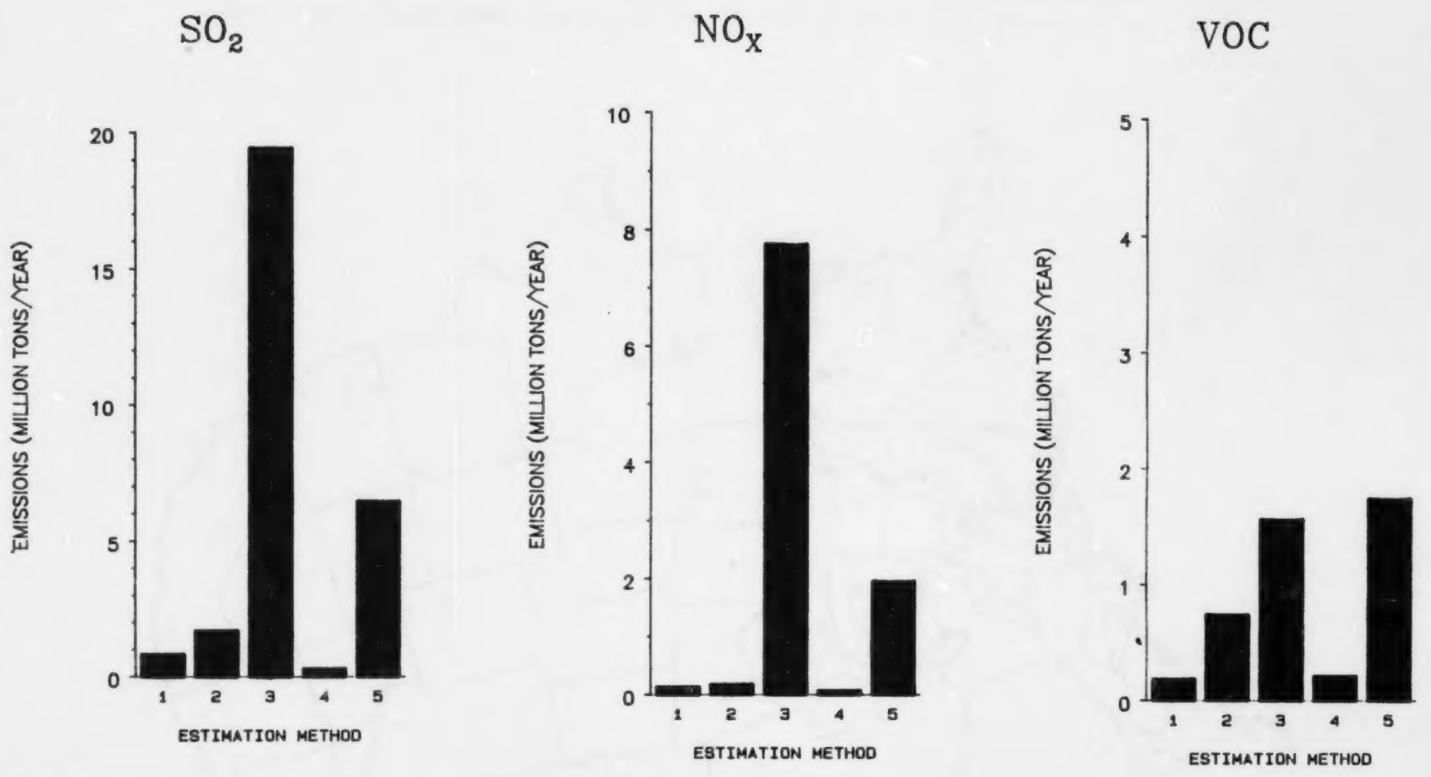


Figure 2-5. 1980 NAPAP Emissions Inventory Version 5.0 - spatial distribution of point sources emitting greater than 25,000 tons/year $SO_2$.



Key to estimation method codes:

1. Stack Test
2. Material Balance
3. Emission Factor (AP-42)
4. Engineering Judgement
5. Local/Other Emission Factor

**Figure 2-6.** **1980 NAPAP Emissions Inventory Version 5.0 - distribution of point source emissions by estimation method.**

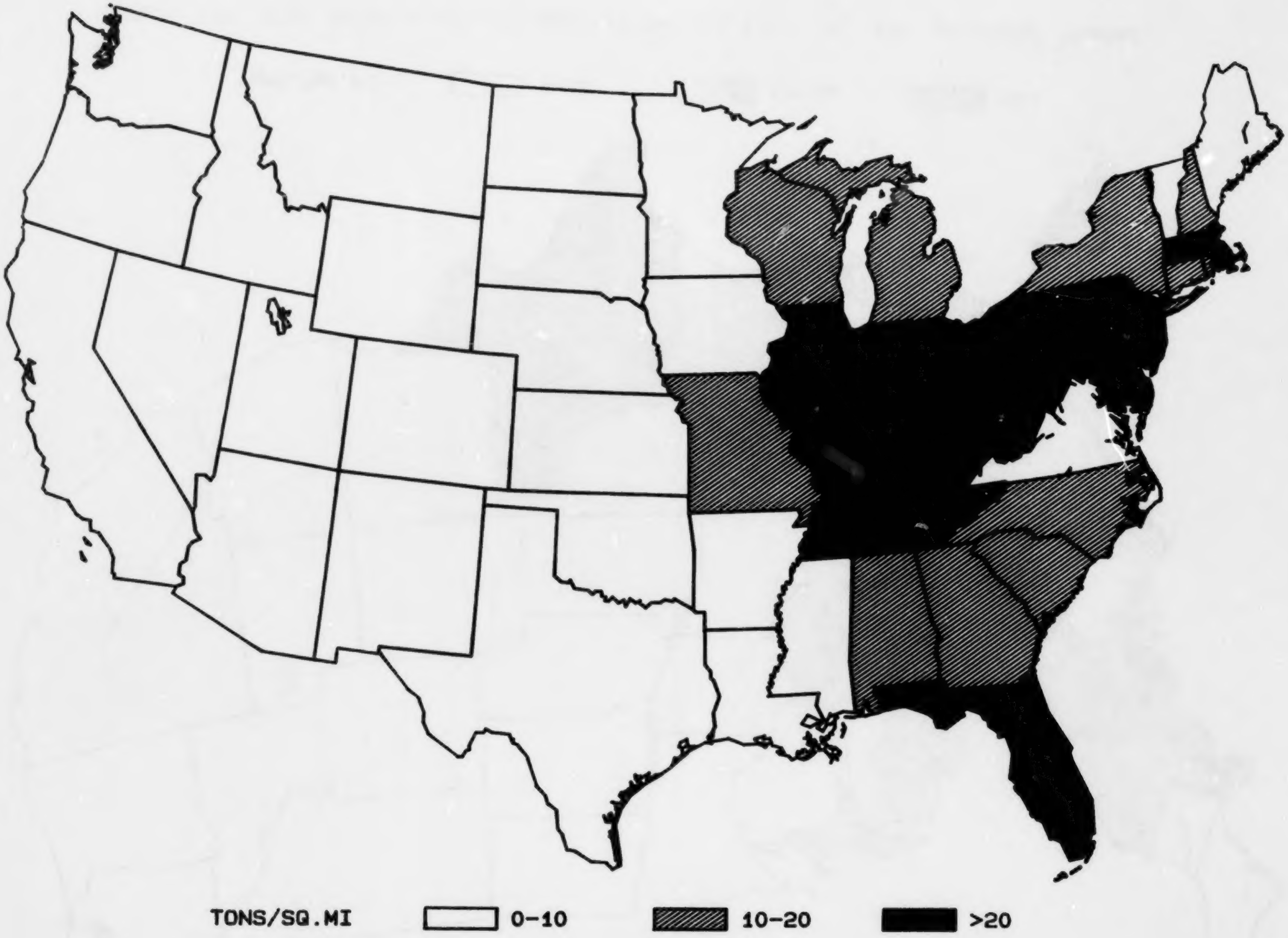

TONS/SQ.MI
▭ 0-10
▨ 10-20
■ >20

Figure 2-7. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ state emissions density.

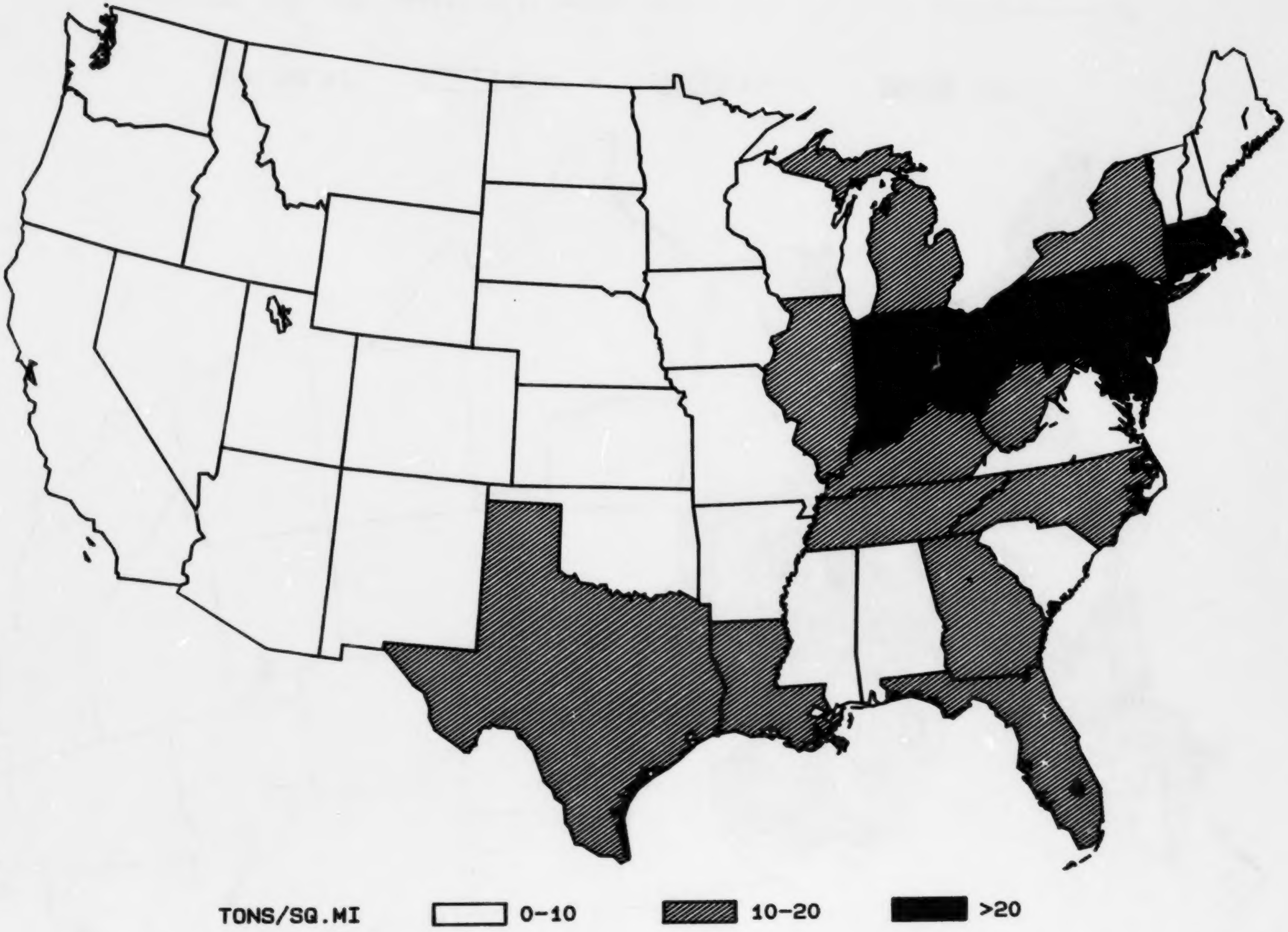

TONS/SQ.MI
0-10
10-20
>20

Figure 2-8. 1980 NAPAP Emissions Inventory Version 5.0 - $NO_x$ state emissions density.

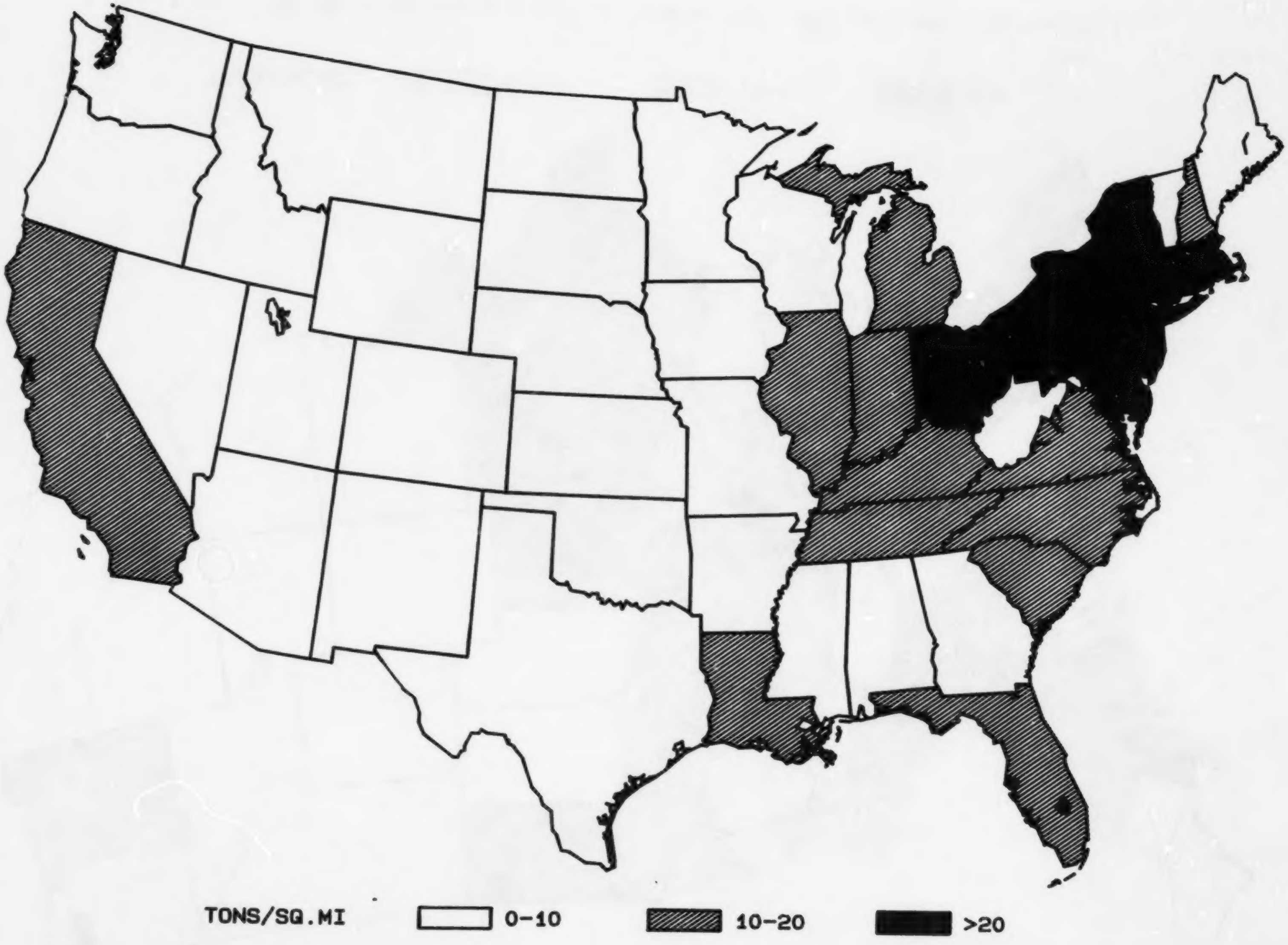

TONS/SQ.MI
▢ 0-10
▨ 10-20
■ >20

Figure 2-9. 1980 NAPAP Emissions Inventory Version 5.0 - VOC state emissions density.

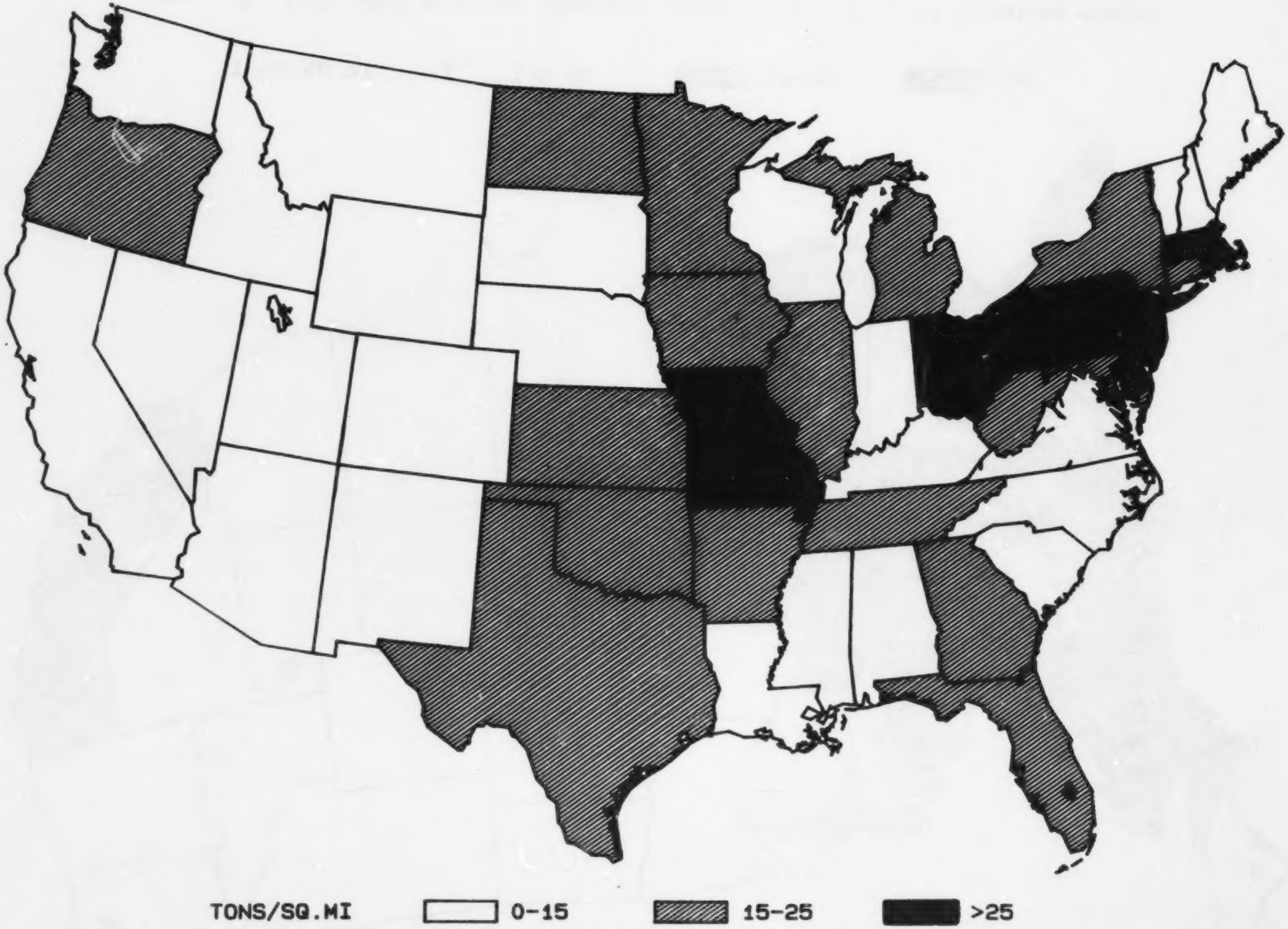

TONS/SQ.MI
0-15
15-25
>25

Figure 2-10. 1980 NAPAP Emissions Inventory Version 5.0 - TSP state emissions density.

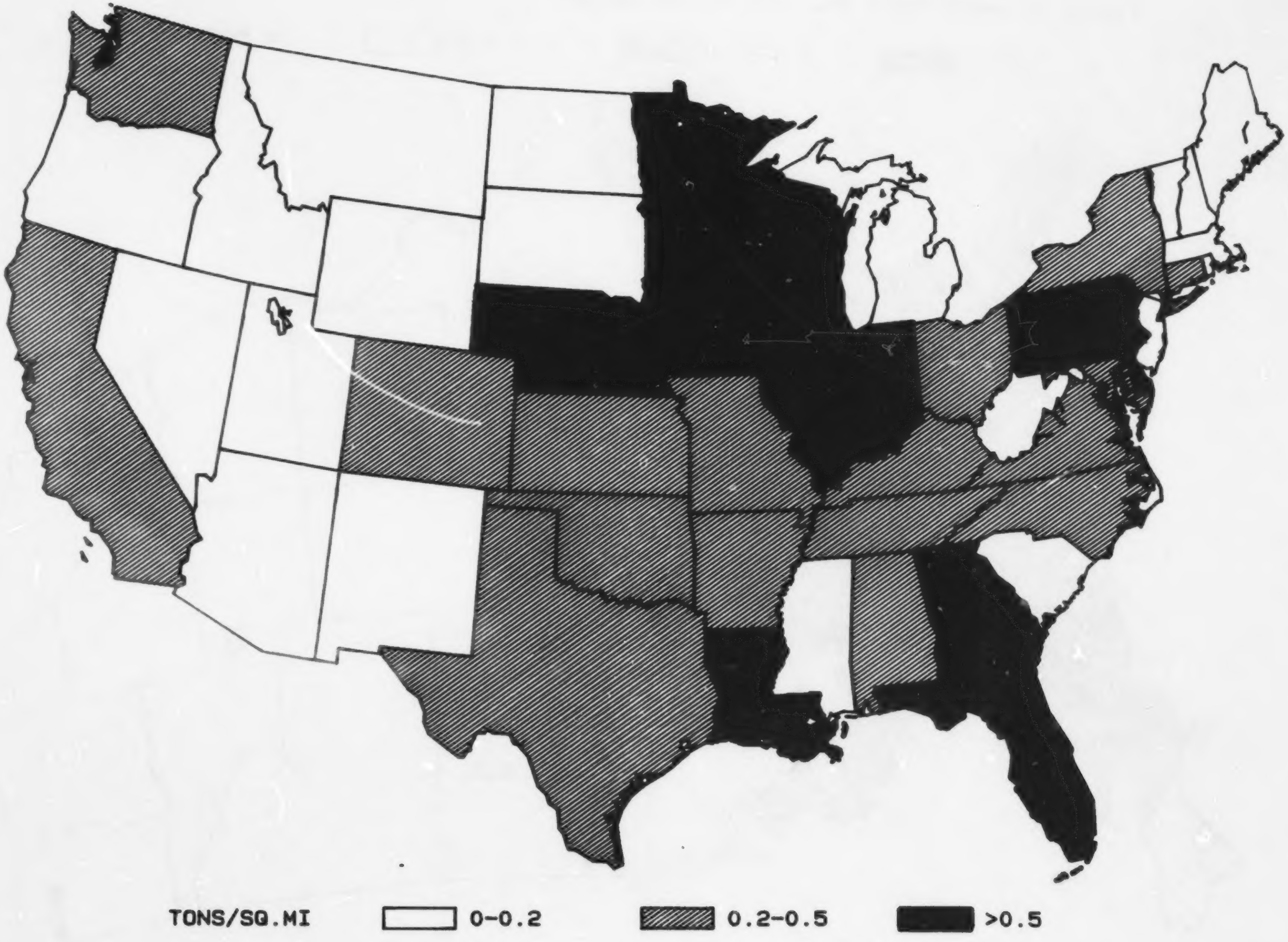

TONS/SQ.MI
☐ 0-0.2
▨ 0.2-0.5
■ >0.5

Figure 2-11. 1980 NAPAP Emissions Inventory Version 5.0 - $NH_3$ state emissions density.

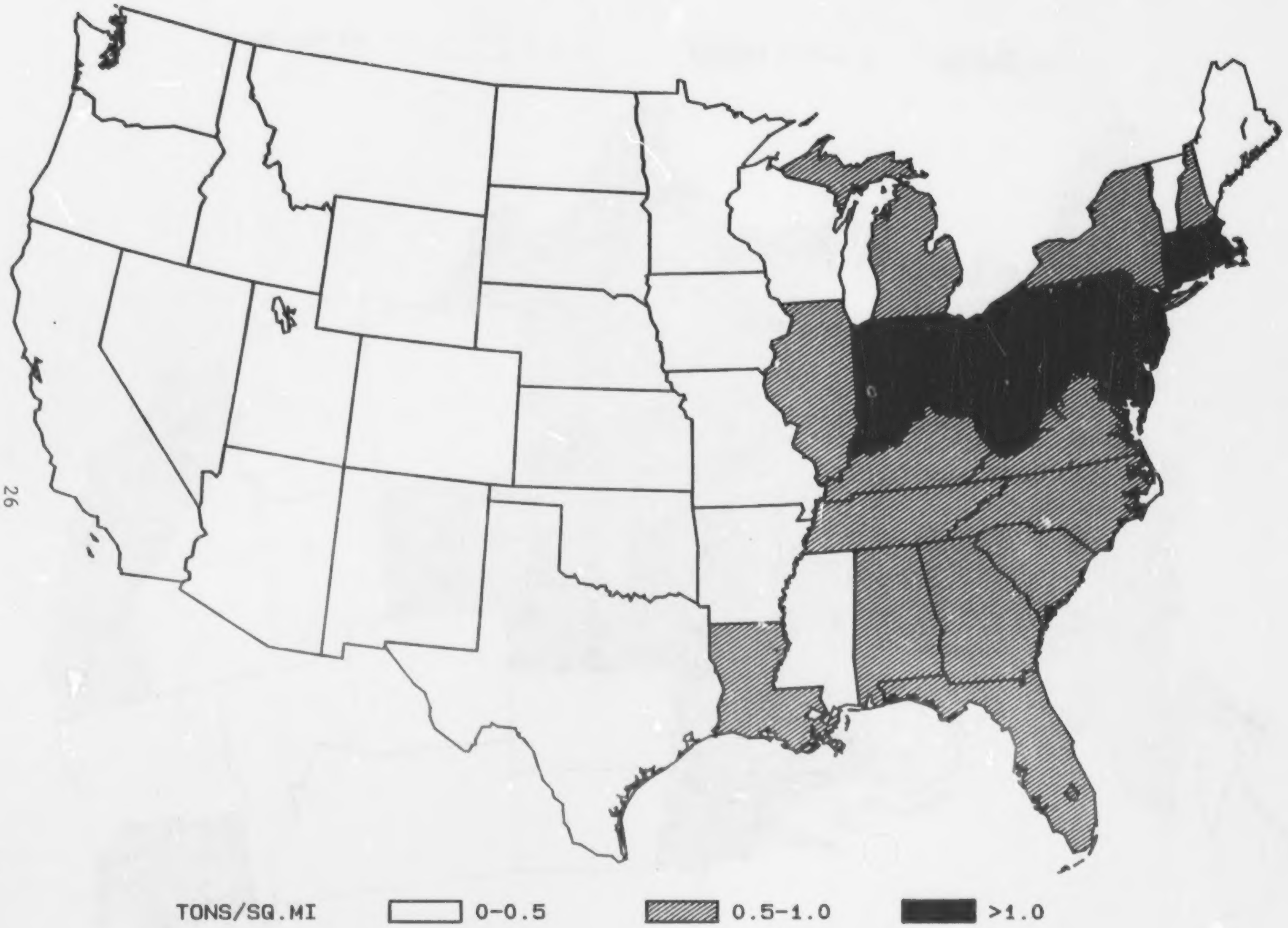

TONS/SQ.MI
☐ 0-0.5
▨ 0.5-1.0
■ >1.0

Figure 2-12. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_4$ state emissions density.

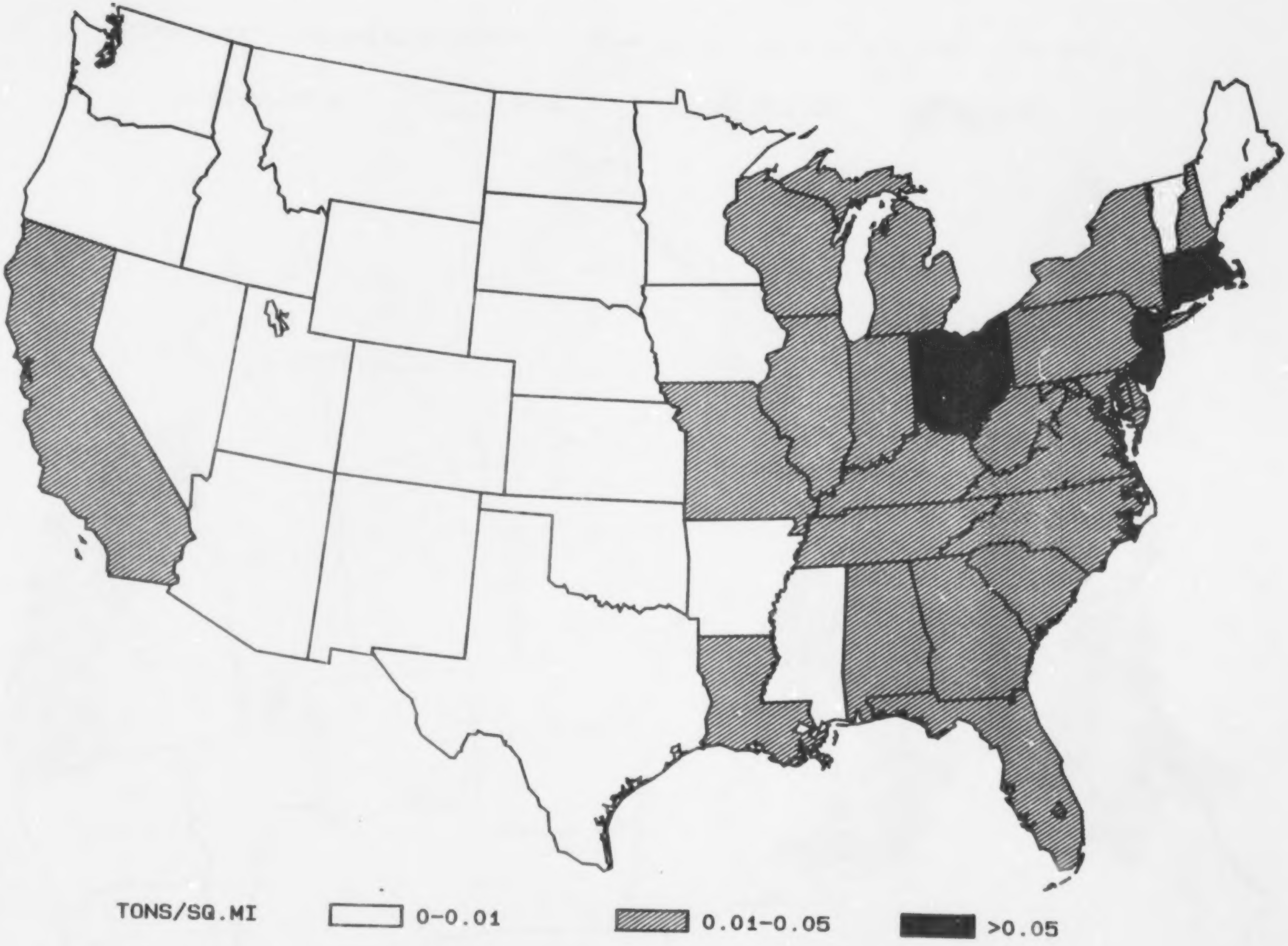

TONS/SQ.MI
0-0.01
0.01-0.05
>0.05

Figure 2-13. 1980 NAPAP Emissions Inventory Version 5.0 - Pb state emissions density.

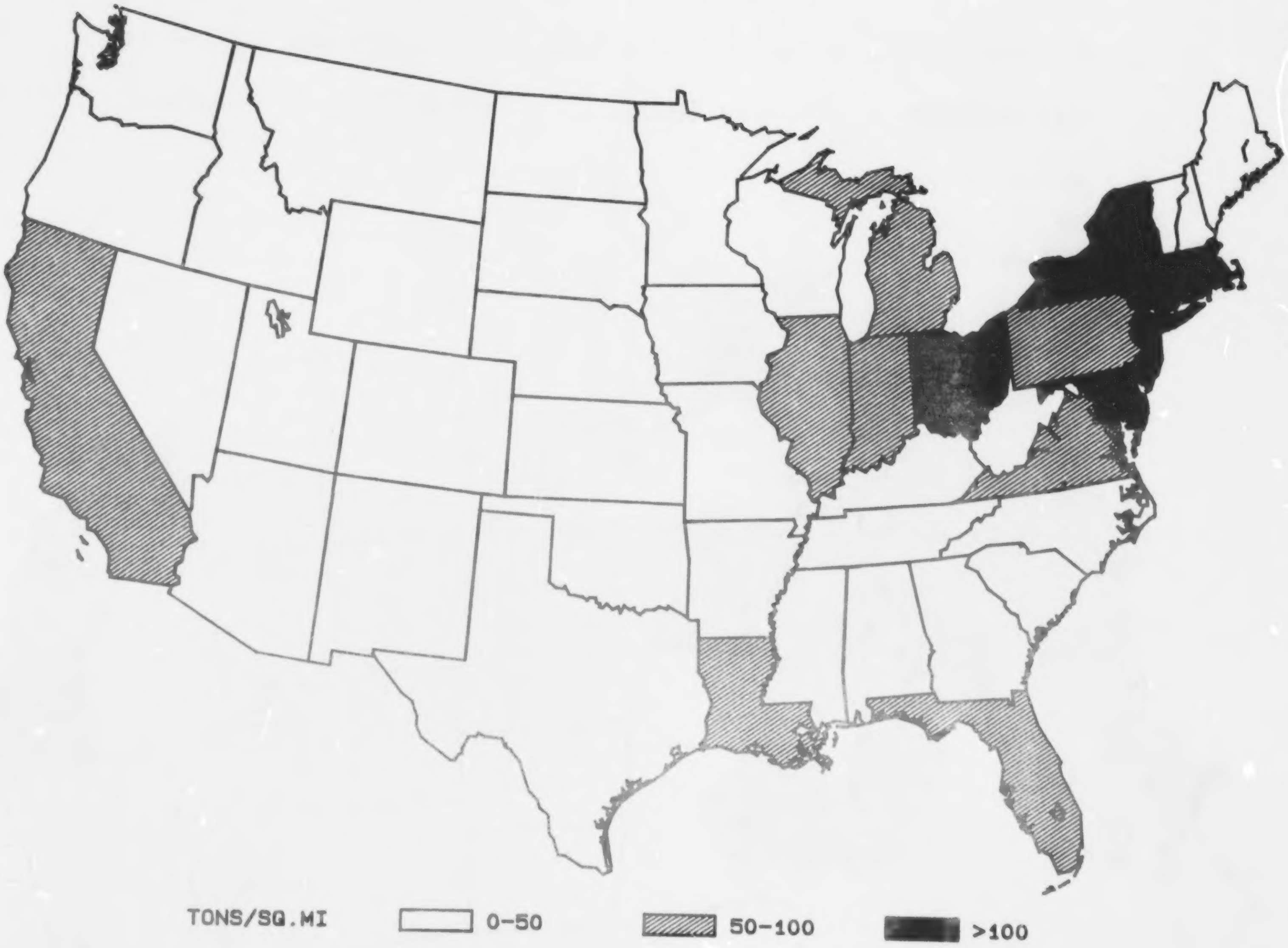

TONS/SQ.MI
0-50
50-100
>100

Figure 2-14. 1980 NAPAP Emissions Inventory Version 5.0 - CO state emissions density.

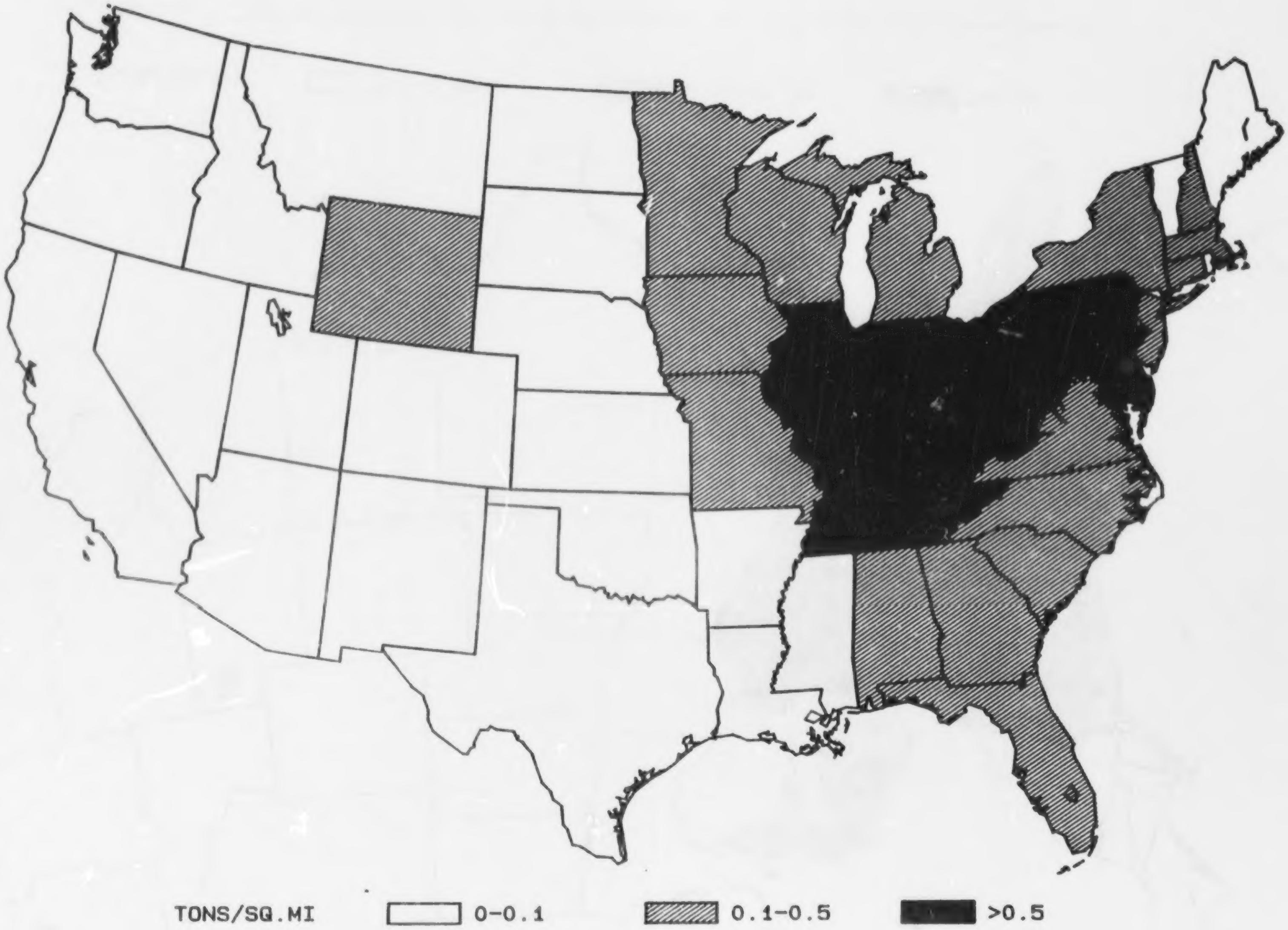

TONS/SQ.MI
□ 0-0.1
▨ 0.1-0.5
■ >0.5

Figure 2-15. 1980 NAPAP Emissions Inventory Version 5.0 - HCl state emissions density.

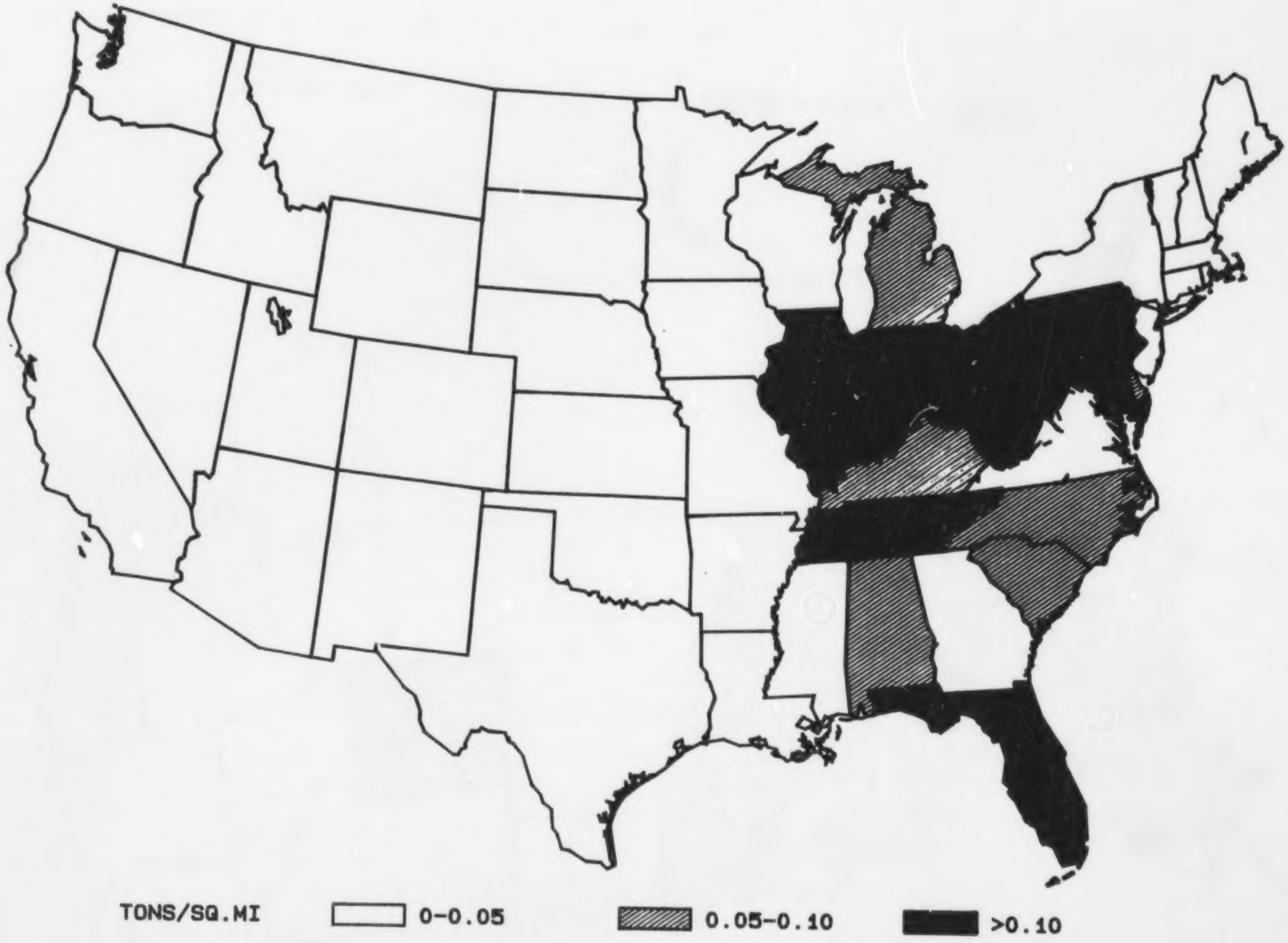

TONS/SQ.MI
▢ 0-0.05
▨ 0.05-0.10
■ >0.10

Figure 2-16. 1980 NAPAP Emissions Inventory Version 5.0 - HF state emissions density.

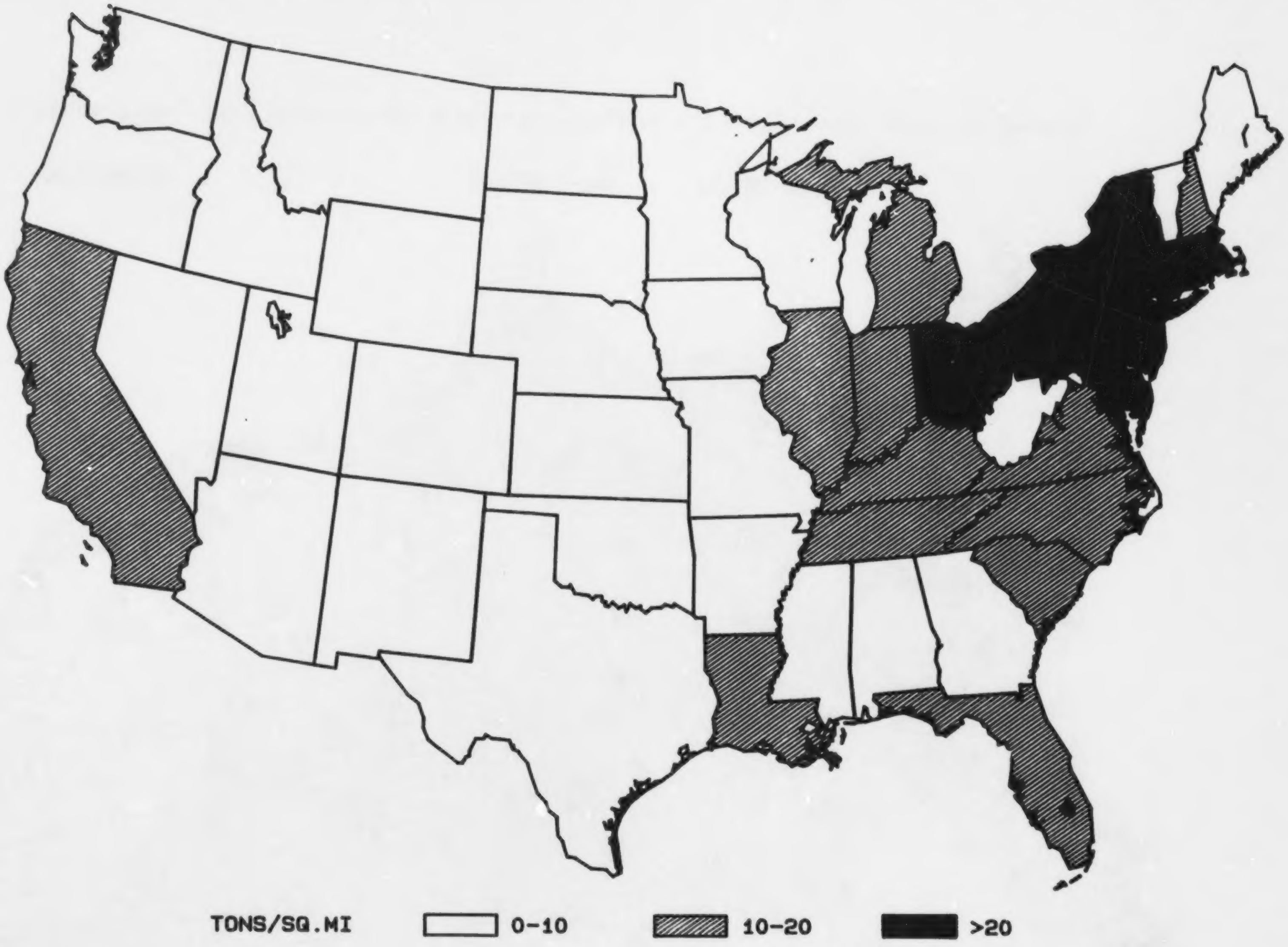

TONS/SQ.MI
☐ 0-10
▨ 10-20
■ >20

Figure 2-17. 1980 NAPAP Emissions Inventory Version 5.0 - THC state emissions density.

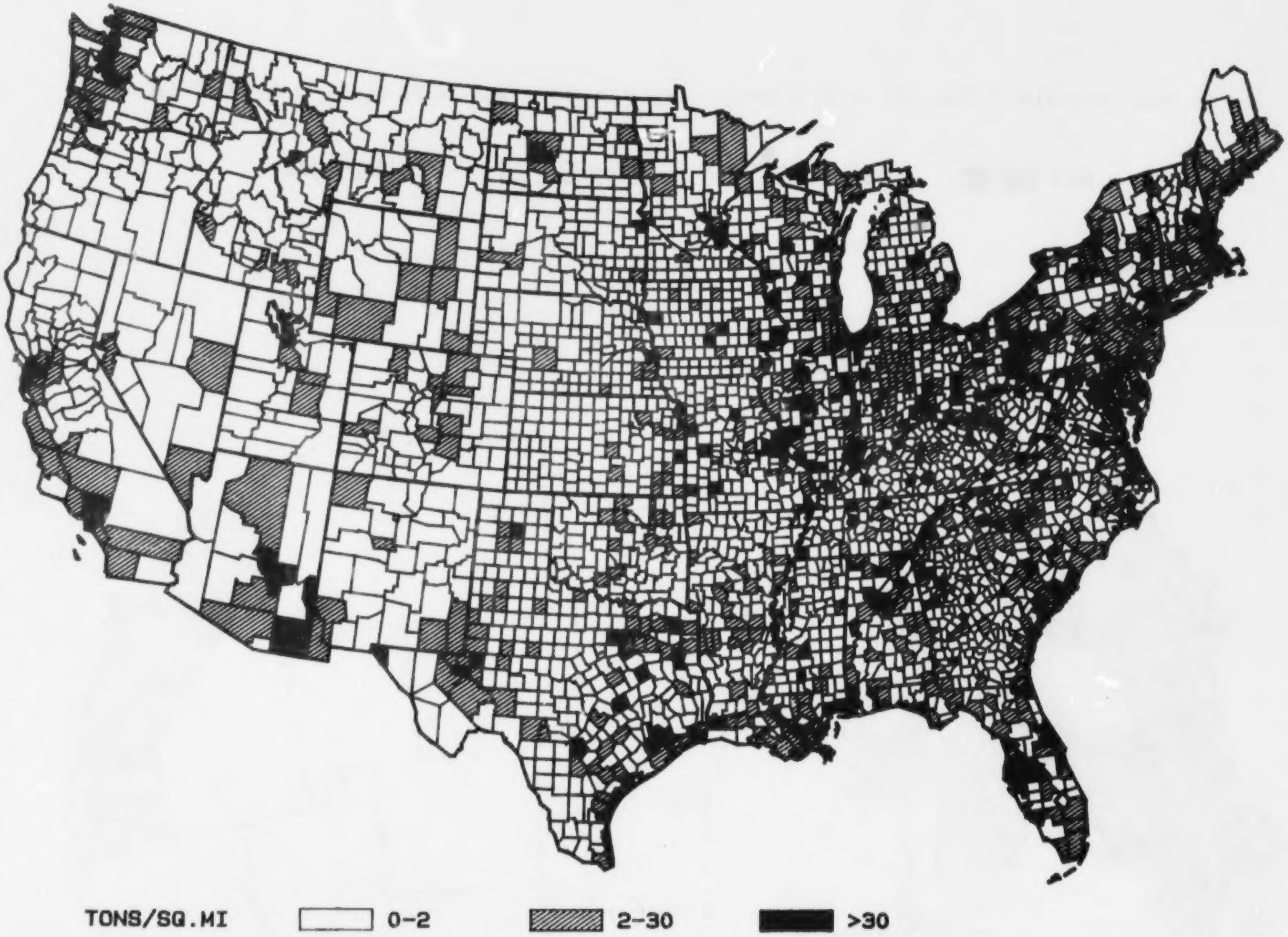

TONS/SQ.MI
0-2
2-30
>30

Figure 2-18. 1980 NAPAP Emissions Inventory Version 5.0 - $SO_2$ county emissions density.

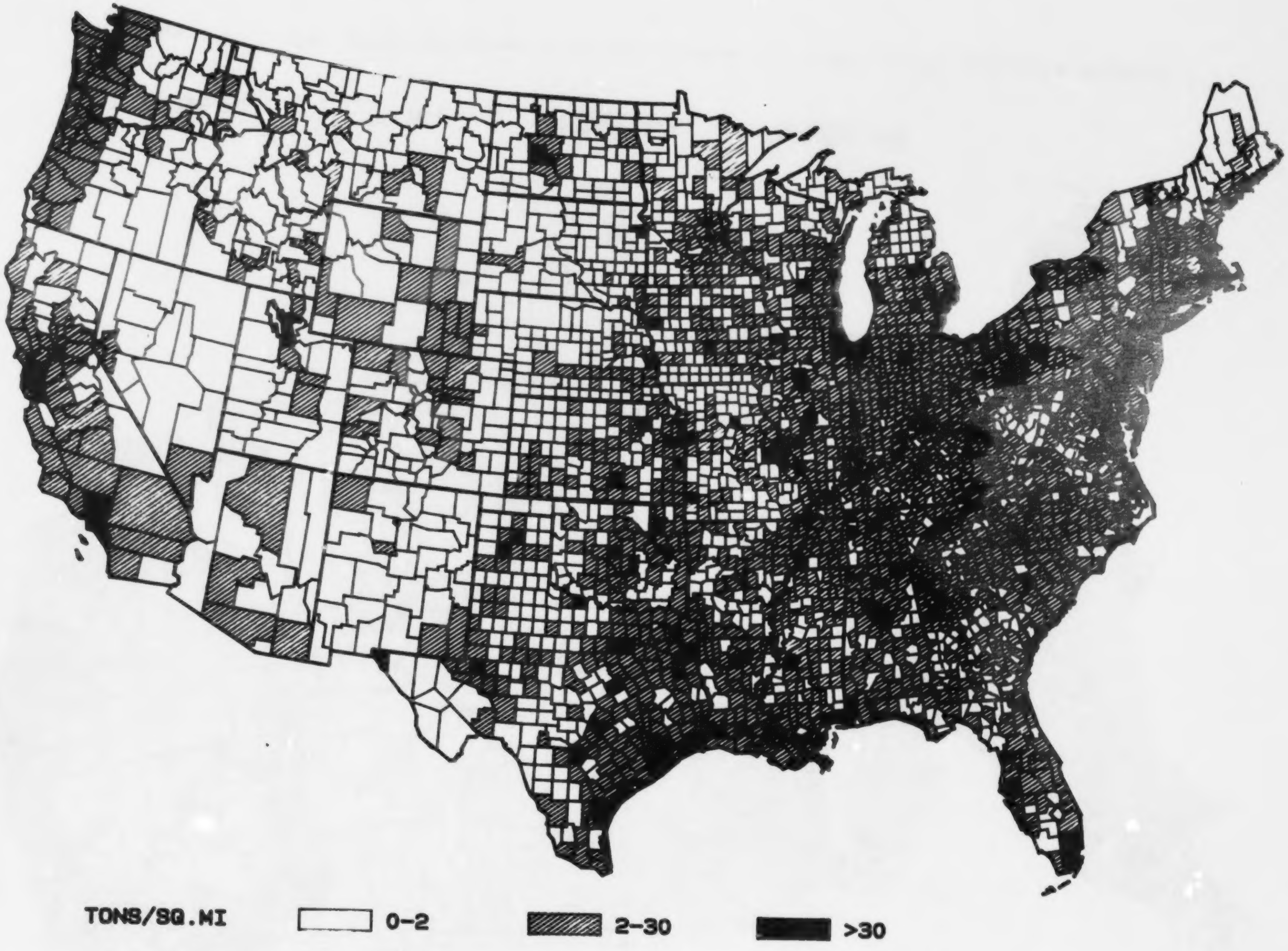

TONS/SQ.MI
▭ 0-2
▨ 2-30
■ >30

Figure 2-19. 1980 NAPAP Emissions Inventory Version 5.0 - $NO_x$ county emissions density.

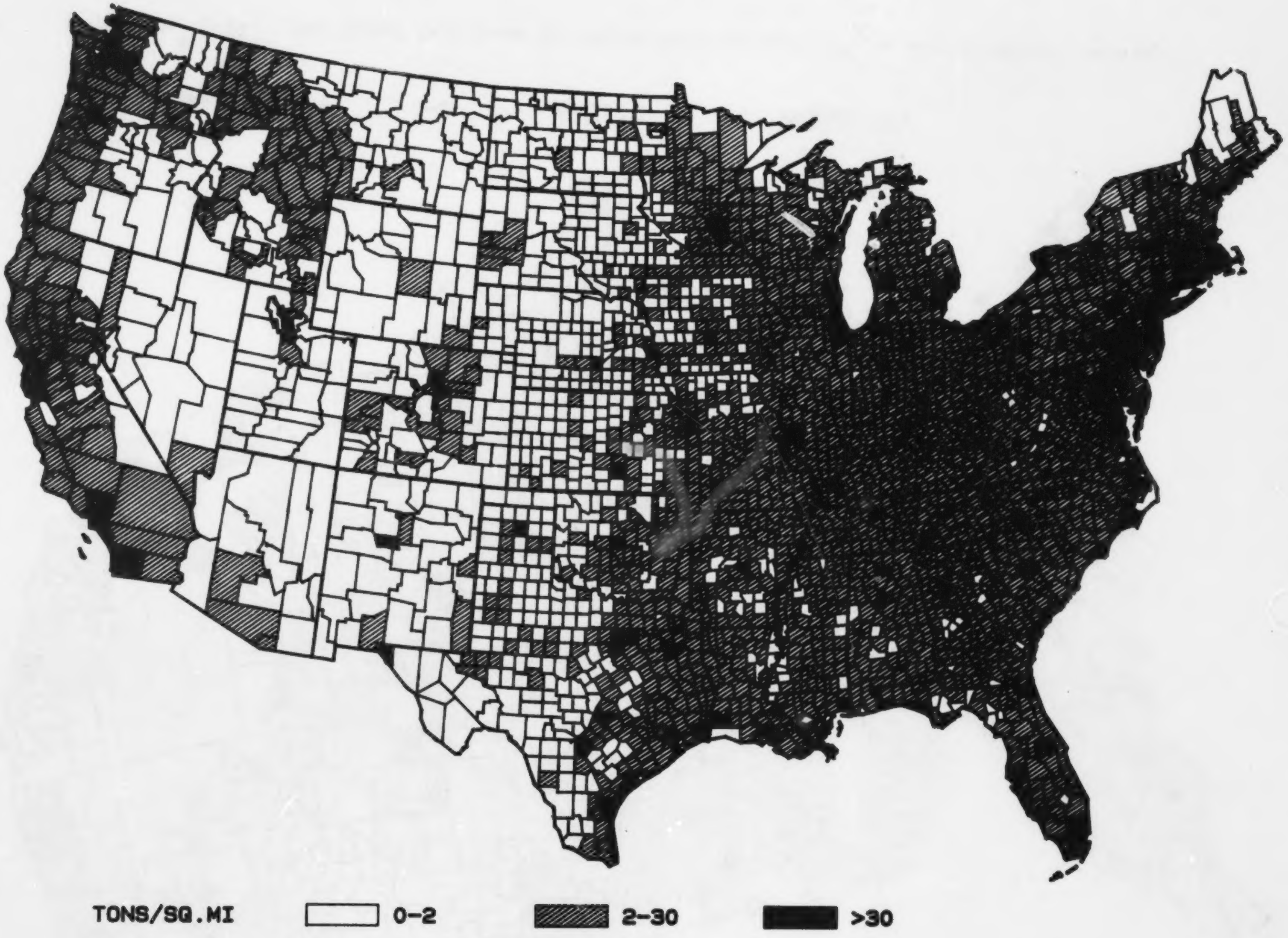

TONS/SQ.MI
0-2
2-30
>30

Figure 2-20. 1980 NAPAP Emissions Inventory Version 5.0 - VOC county emissions density.

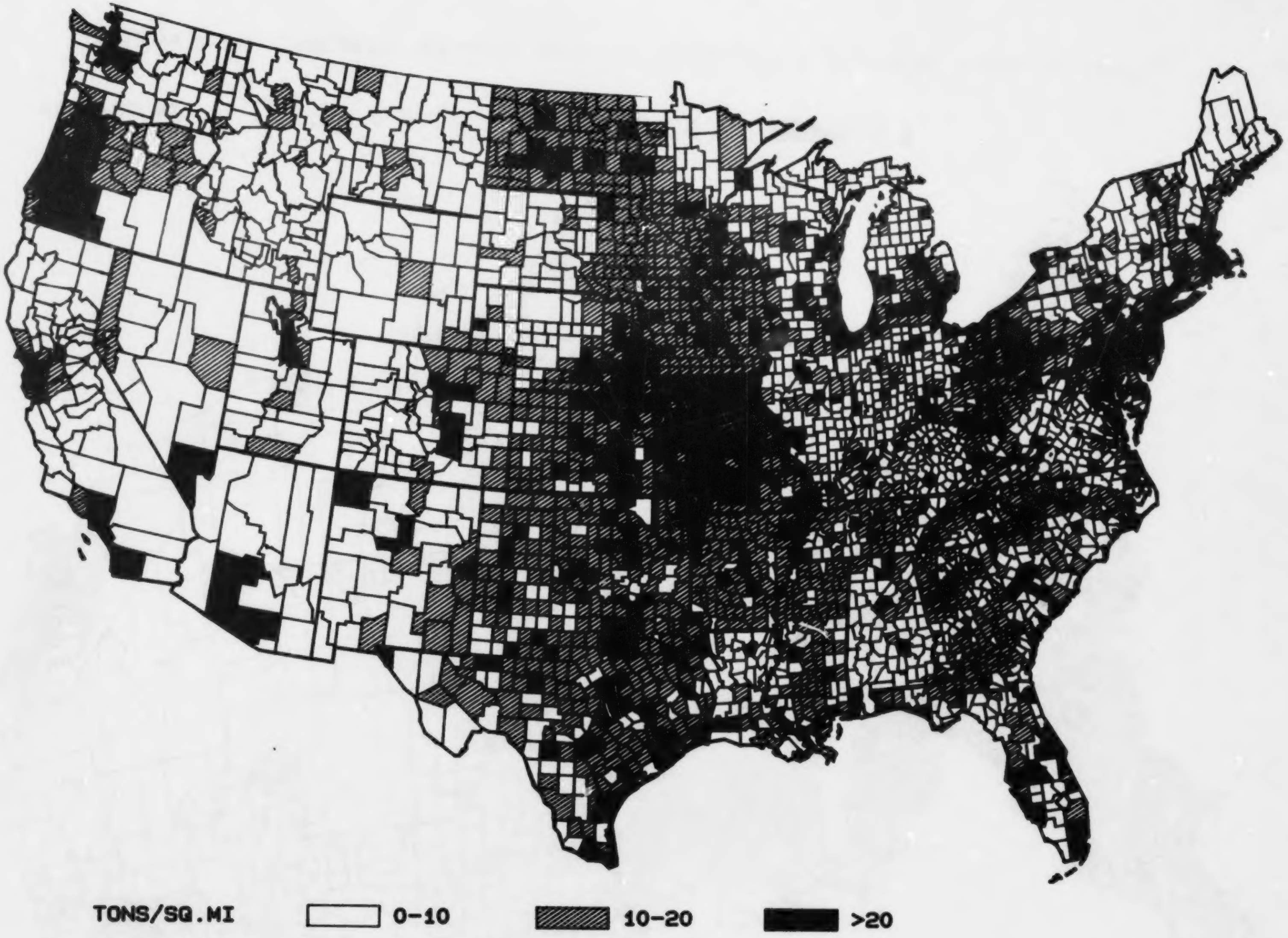

TONS/SQ.MI
0-10
10-20
>20

Figure 2-21. 1980 NAPAP Emissions Inventory Version 5.0 - TSP county emissions density.

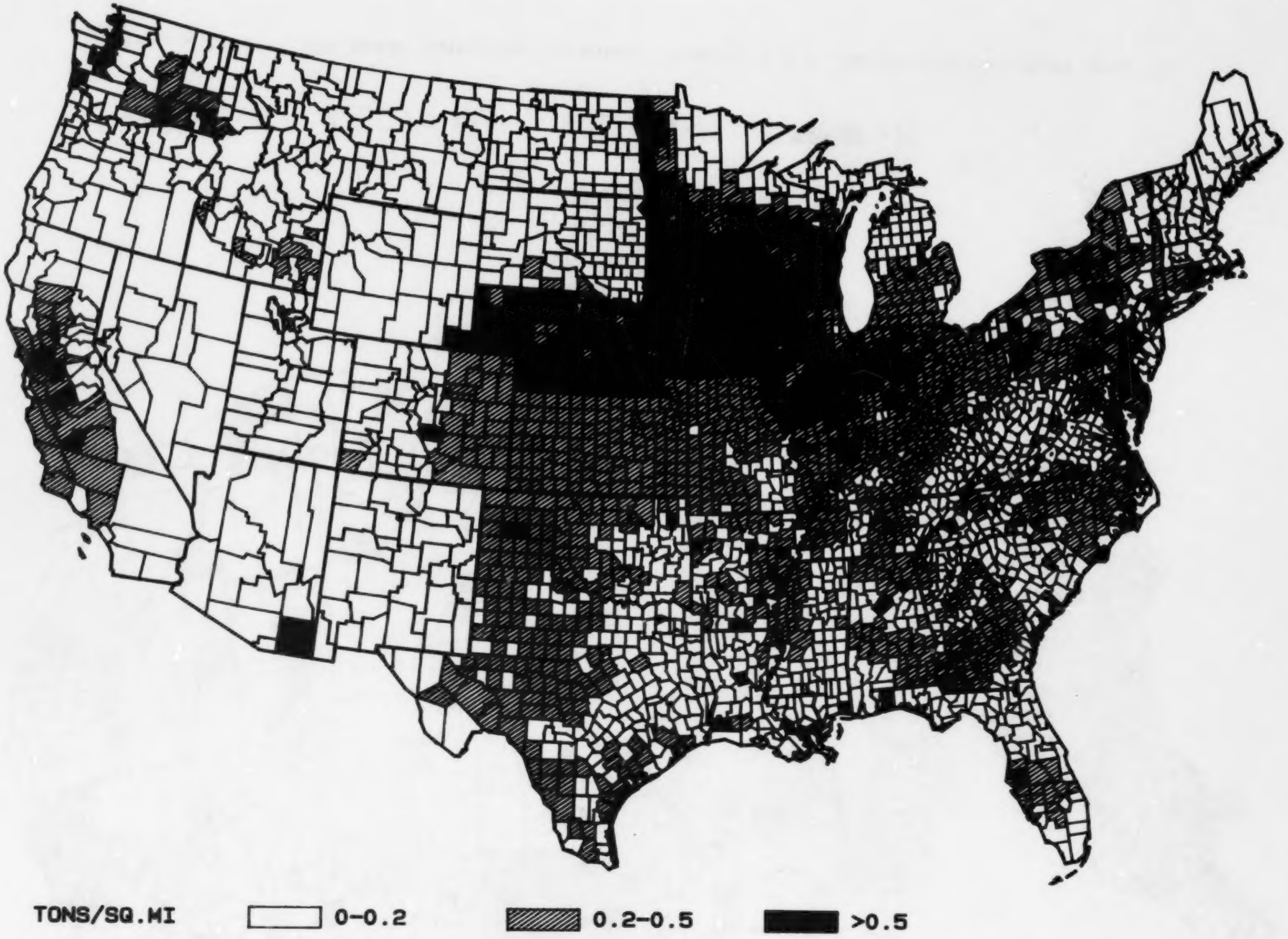

TONS/SQ.MI
☐ 0-0.2
▨ 0.2-0.5
■ >0.5

Figure 2-22. 1980 NAPAP Emissions Inventory Version 5.0 - $NH_3$ county emissions density.

significantly greater degree of resolution. Emissions ranges for $SO_2$, $NO_x$ and VOC were standardized for comparative purposes, but it was not practical to extend this standardization to other pollutants due to their radically different emissons levels. In addition, emissions ranges on the state density maps generally differ from those on the county density maps for the same pollutant. This accounts for the presence of many counties in Arizona and New Mexico in the middle $SO_2$ emissions range, while the aggregated state density falls in the lowest category in Figure 2-7. Ammonia ranges are comparatively narrow, making the state density categories highly sensitive to individual counties with exceptionally high emissions. In Louisiana, for example, enough ammonia is generated by three counties to place the entire state within the high range on the state density map. The majority of $SO_2$, $NO_x$, and VOC emissions are associated with heavily industrialized areas, primarily east of the Mississippi River. Total particulate emissions are concentrated in both urban and agricultural areas, while ammonia emissions are centered in the midwest, due principally to agricultural applications.

## VERSION 5.2

The 1980 NAPAP Eulerian Modeling Emissions Inventory (Version 5.2) provides additional temporal, spatial, and species resolution of the information contained in Version 5.0 by applying a series of allocation factors to the annual emissions data. A detailed description of the development and application of these factors is the subject of Section 6 of this report.

Tables 2-7 through 2-9 summarize emissions by EPA region, state, and province, respectively. Note that $NO_x$ emissions are apportioned into NO and $NO_2$, TSP emissions include four classes of alkaline dust, and total hydrocarbons (THC) are allocated to classes based on photochemical reactivity. Region 5 remains the largest source of hydrocarbon emissions, while Regions 4 and 6 also contribute significantly. Among hydrocarbons, alkanes have the largest emissions, primarily due to the large number of individual species represented in the class (approximately half of the 160 species in the inventory). On a state level, Texas and California lead in emissions of virtually all hydrocarbon species; in Canada, Ontario, Quebec, and Alberta are the greatest contributors.

The reader will note that Version 5.2 emissions totals for some pollutants are slightly smaller than those in the 5.0 inventory. This is due to the fact that some emissions sources could not be properly allocated due to missing or invalid data. As an example, 40 Canadian point source observations fell outside the northern and western boundaries of the NAPAP grid system and were therefore not retained in Version 5.2 of the inventory. A complete synopsis of inventory processing is contained in Section 7.

The NAPAP 5.2 Inventory can temporally allocate emissions to the hourly level for a typical weekday, Saturday, or Sunday in any of the four seasons. Table 2-10 illustrates the seasonal variation in emissions of $SO_2$, $NO_x$, and VOC. The greatest variation (2.7 percentage points between spring and fall) occurs for VOC, while $NO_x$ emissions are relatively independent of

TABLE 2-7a. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL U.S. POINT AND AREA SOURCE EMISSIONS BY EPA REGION

| EPA REGION | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| REGION 1 | 685,936 | 41,953 | 552,696 | 43,882 | 1,415 | 4,703,212 | 3,847 | 215 | 2,470 | 657,426 | 312 | 183 | 169 | 80 | 1,185,538 | 1,274,058 |
| REGION 2 | 1,180,163 | 63,920 | 1,075,799 | 78,555 | 1,979 | 7,052,898 | 11,835 | 2,208 | 14,042 | 1,204,930 | 1,404 | 1,168 | 559 | 315 | 1,857,619 | 2,016,830 |
| REGION 3 | 3,858,772 | 126,506 | 2,096,543 | 138,182 | 3,748 | 9,526,520 | 86,787 | 13,285 | 40,660 | 2,573,135 | 10,367 | 4,162 | 1,713 | 1,991 | 2,210,510 | 2,360,328 |
| REGION 4 | 6,473,217 | 206,358 | 3,725,913 | 252,170 | 5,199 | 16,253,808 | 130,211 | 48,740 | 135,784 | 5,088,856 | 13,766 | 4,664 | 2,049 | 1,306 | 4,075,244 | 4,316,670 |
| REGION 5 | 7,867,419 | 202,874 | 4,187,088 | 280,130 | 8,105 | 18,753,223 | 165,692 | 27,076 | 205,228 | 5,286,234 | 38,742 | 10,528 | 4,869 | 7,451 | 4,414,825 | 4,805,098 |
| REGION 6 | 2,179,556 | 113,688 | 4,640,733 | 316,592 | 3,573 | 15,437,049 | 35,964 | 10,851 | 133,234 | 9,727,381 | 13,762 | 3,265 | 696 | 751 | 3,537,629 | 3,847,014 |
| REGION 7 | 1,973,687 | 45,243 | 1,440,226 | 101,678 | 1,725 | 4,993,826 | 44,940 | 5,768 | 176,547 | 7,049,162 | 22,074 | 4,103 | 1,124 | 429 | 1,285,770 | 1,409,712 |
| REGION 8 | 793,365 | 54,576 | 993,160 | 72,028 | 1,485 | 6,096 071 | 28,165 | 3,765 | 55,581 | 5,204,444 | 8,339 | 2,758 | 1,362 | 2,220 | 1,005,242 | 1,073,957 |
| REGION 9 | 1,512,034 | 73,455 | 1,604,421 | 139,155 | 3,116 | 11,356,048 | 12,963 | 1,676 | 44,639 | 3,297,549 | 3,359 | 800 | 181 | 304 | 2,564,528 | 2,785,895 |
| REGION 10 | 429,988 | 47,035 | 560,507 | 52,780 | 1,387 | 5,136,282 | 6,120 | 1,850 | 30,479 | 2,528,253 | 1,684 | 396 | 253 | 627 | 1,027,643 | 1,087,898 |
| Contig. U.S. | 26,954,136 | 975,608 | 20,877,086 | 1,475,151 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 113,808 | 32,025 | 12,975 | 15,474 | 23,164,547 | 24,977,459 |

## TABLE 2-7b. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL U.S. POINT AND AREA SOURCE HYDROCARBON SPECIES EMISSIONS BY EPA REGION

| | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pent | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes |
| REGION 1 | 4,488,261 | 327,245 | 134,969 | 854,466 | 128,371 | 123,580 | 30,523 | 6,570,576 | 1,428,731 | 674,720 | 2,332 | 1,258,505 |
| REGION 2 | 8,243,208 | 491,826 | 324,307 | 1,414,954 | 268,306 | 294,022 | 37,972 | 11,110,085 | 2,414,630 | 1,116,702 | 4,020 | 1,988,577 |
| REGION 3 | 7,164,608 | 797,476 | 453,331 | 1,528,977 | 341,262 | 261,384 | 53,953 | 12,535,958 | 3,187,076 | 1,346,102 | 9,897 | 2,445,803 |
| REGION 4 | 11,923,392 | 1,102,242 | 555,938 | 2,615,654 | 565,032 | 428,845 | 60,880 | 24,080,968 | 7,256,567 | 2,580,343 | 18,138 | 5,180,087 |
| REGION 5 | 19,943,921 | 1,348,978 | 501,301 | 2,778,259 | 506,159 | 485,791 | 81,174 | 26,050,896 | 6,487,520 | 2,766,134 | 21,432 | 4,770,952 |
| REGION 6 | 15,760,210 | 1,070,750 | 1,008,229 | 2,561,530 | 591,888 | 858,782 | 17,009 | 19,898,278 | 7,984,392 | 3,111,527 | 15,376 | 4,616,501 |
| REGION 7 | 6,391,697 | 395,581 | 202,425 | 806,464 | 149,087 | 154,481 | 15,734 | 7,408,045 | 2,344,611 | 890,088 | 7,961 | 1,492,723 |
| REGION 8 | 3,569,567 | 224,119 | 193,733 | 715,431 | 162,461 | 153,049 | 8,838 | 5,623,277 | 2,804,459 | 620,664 | 9,109 | 1,789,389 |
| REGION 9 | 11,455,675 | 708,892 | 517,552 | 2,085,014 | 421,084 | 400,152 | 18,456 | 15,441,577 | 4,787,257 | 1,792,586 | 10,240 | 3,243,512 |
| REGION 10 | 3,053,606 | 231,153 | 187,933 | 611,297 | 167,503 | 134,208 | 15,835 | 5,727,904 | 2,916,488 | 558,798 | 4,737 | 1,936,466 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 | 28,722,513 |

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org. Acid |
| REGION 1 | 227,905 | 931,231 | 1,056,215 | 231,621 | 162,388 | 1,411,102 | 49,580 | 28,945 | 507,699 | 261,771 | 121,765 |
| REGION 2 | 433,089 | 1,337,002 | 1,352,810 | 301,227 | 277,135 | 1,837,451 | 88,371 | 43,927 | 587,929 | 333,884 | 164,995 |
| REGION 3 | 477,301 | 1,673,599 | 1,871,433 | 411,867 | 356,953 | 1,746,176 | 210,780 | 59,670 | 623,232 | 411,091 | 198,794 |
| REGION 4 | 895,017 | 2,960,603 | 2,439,933 | 501,777 | 679,826 | 2,868,961 | 392,474 | 199,568 | 1,336,863 | 881,286 | 280,819 |
| REGION 5 | 949,131 | 3,295,684 | 3,082,877 | 687,808 | 723,409 | 3,014,136 | 452,399 | 88,477 | 1,528,633 | 1,080,721 | 392,563 |
| REGION 6 | 1,154,477 | 2,223,543 | 1,233,095 | 186,129 | 798,511 | 3,481,031 | 370,831 | 158,497 | 1,054,279 | 566,651 | 153,211 |
| REGION 7 | 311,050 | 1,064,588 | 789,555 | 137,583 | 244,343 | 923,051 | 174,703 | 37,233 | 399,882 | 323,485 | 84,856 |
| REGION 8 | 195,570 | 616,120 | 393,871 | 82,388 | 179,678 | 865,120 | 190,449 | 38,435 | 126,026 | 75,275 | 23,812 |
| REGION 9 | 684,105 | 1,833,406 | 987,454 | 206,728 | 449,368 | 2,422,941 | 218,516 | 132,590 | 951,808 | 353,087 | 120,563 |
| REGION 10 | 165,126 | 556,652 | 555,232 | 123,692 | 139,926 | 629,623 | 99,842 | 28,951 | 137,627 | 89,578 | 53,259 |
| Contig. U.S. | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

## TABLE 2-8a. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL U.S. POINT AND AREA SOURCE EMISSIONS BY STATE

| | | | | | | | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| State | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alabama | 857,549 | 32,991 | 457,653 | 29,603 | 681 | 1,811,119 | 19,542 | 3,539 | 11,964 | 439,271 | 1,604 | 488 | 356 | 280 | 391,455 | 475,591 |
| Arizona | 844,078 | 30,871 | 245,625 | 18,269 | 366 | 1,310,433 | 8,937 | 1,087 | 11,921 | 841,489 | 1,175 | 334 | 111 | 57 | 254,096 | 271,243 |
| Arkansas | 87,127 | 10,478 | 194,532 | 16,611 | 264 | 1,045,560 | 1,786 | 1,445 | 25,418 | 874,245 | 307 | 95 | 23 | 48 | 223,135 | 234,377 |
| California | 519,799 | 35,917 | 1,268,139 | 114,625 | 2,643 | 9,524,250 | 472 | 145 | 32,013 | 1,536,414 | 1,777 | 375 | 48 | 235 | 2,216,485 | 2,414,927 |
| Colorado | 140,138 | 9,347 | 284,405 | 20,372 | 756 | 2,302,185 | 9,110 | 1,186 | 24,987 | 1,134,995 | 2,320 | 445 | 177 | 119 | 356,946 | 385,554 |
| Connecticut | 63,665 | 8,110 | 128,656 | 11,094 | 381 | 1,192,328 | 491 | 0 | 1,946 | 120,226 | 28 | 8 | 3 | 3 | 284,183 | 299,090 |
| Delaware | 124,669 | 4,645 | 58,416 | 3,850 | 71 | 242,885 | 1,152 | 184 | 2,051 | 49,382 | 167 | 176 | 84 | 45 | 77,101 | 81,188 |
| Dist. of Colum. | 15,325 | 1,121 | 23,194 | 2,158 | 39 | 338,780 | 655 | 23 | 59 | 15,099 | 7 | 7 | 4 | 2 | 44,081 | 48,400 |
| Florida | 1,102,994 | 30,793 | 663,745 | 48,464 | 1,087 | 4,071,755 | 8,834 | 29,228 | 28,793 | 919,841 | 6,269 | 931 | 201 | 84 | 828,561 | 868,694 |
| Georgia | 900,080 | 30,684 | 553,085 | 37,565 | 697 | 2,335,826 | 20,453 | 2,503 | 35,359 | 882,031 | 299 | 263 | 201 | 222 | 508,361 | 530,222 |
| Idaho | 56,210 | 8,676 | 82,313 | 9,561 | 548 | 1,280,507 | 329 | 242 | 8,133 | 330,728 | 87 | 23 | 10 | 37 | 222,050 | 230,398 |
| Illinois | 1,464,520 | 42,270 | 909,708 | 63,279 | 2,635 | 4,246,797 | 34,318 | 7,937 | 68,633 | 932,702 | 5,892 | 1,899 | 708 | 899 | 988,586 | 1,092,842 |
| Indiana | 1,970,870 | 38,111 | 741,610 | 45,233 | 1,101 | 2,374,627 | 33,494 | 4,607 | 29,361 | 496,649 | 5,026 | 2,324 | 1,694 | 4,565 | 562,647 | 623,821 |
| Iowa | 334,278 | 11,010 | 284,792 | 20,962 | 427 | 1,105,666 | 11,505 | 1,706 | 80,410 | 1,237,845 | 3,038 | 685 | 386 | 54 | 237,157 | 258,603 |
| Kansas | 228,074 | 7,409 | 479,624 | 33,690 | 250 | 1,072,560 | 6,614 | 799 | 34,189 | 1,852,371 | 354 | 103 | 42 | 22 | 250,269 | 298,662 |
| Kentucky | 1,150,036 | 23,108 | 519,674 | 31,680 | 519 | 1,594,516 | 22,635 | 3,841 | 8,185 | 452,395 | 1,734 | 970 | 349 | 183 | 441,688 | 469,555 |
| Louisiana | 401,333 | 24,581 | 664,196 | 44,770 | 554 | 2,541,546 | 857 | 1,761 | 26,314 | 559,071 | 407 | 58 | 133 | 219 | 625,559 | 669,847 |
| Maine | 133,369 | 11,223 | 62,433 | 4,635 | 124 | 506,637 | 40 | 5 | 417 | 127,174 | 72 | 21 | 75 | 36 | 141,991 | 149,051 |
| Maryland | 303,471 | 10,727 | 242,626 | 18,477 | 456 | 1,459,780 | 6,559 | 1,307 | 2,992 | 227,611 | 442 | 217 | 101 | 79 | 363,270 | 394,420 |
| Massachusetts | 358,065 | 14,498 | 251,390 | 19,380 | 666 | 2,133,002 | 2,241 | 86 | 104 | 210,504 | 193 | 142 | 65 | 35 | 515,765 | 568,190 |
| Michigan | 841,399 | 32,609 | 668,942 | 46,435 | 1,148 | 3,613,069 | 22,871 | 3,150 | 10,433 | 880,263 | 9,496 | 1,217 | 482 | 565 | 916,363 | 987,380 |
| Minnesota | 238,705 | 14,535 | 340,540 | 26,090 | 469 | 1,928,665 | 8,820 | 1,120 | 48,624 | 1,199,026 | 2,218 | 624 | 160 | 79 | 469,214 | 496,094 |
| Mississippi | 303,846 | 11,281 | 274,714 | 19,797 | 297 | 991,881 | 2,599 | 314 | 7,809 | 587,204 | 125 | 68 | 86 | 41 | 261,800 | 278,672 |
| Missouri | 1,333,218 | 22,746 | 515,805 | 33,992 | 849 | 2,206,090 | 22,184 | 2,681 | 17,264 | 2,877,954 | 18,356 | 3,228 | 685 | 347 | 629,726 | 673,526 |
| Montana | 169,224 | 7,583 | 127,844 | 12,455 | 310 | 1,422,156 | 2,003 | 243 | 3,890 | 880,654 | 129 | 56 | 23 | 26 | 236,467 | 245,600 |
| Nebraska | 78,117 | 4,078 | 160,005 | 13,034 | 199 | 609,510 | 4,637 | 582 | 44,683 | 1,080,992 | 326 | 87 | 12 | 6 | 168,618 | 178,920 |
| Nevada | 148,157 | 6,667 | 90,658 | 6,260 | 107 | 521,365 | 3,554 | 444 | 705 | 919,646 | 407 | 91 | 21 | 12 | 93,948 | 99,725 |
| New Hampshire | 108,484 | 4,867 | 55,291 | 3,666 | 100 | 352,582 | 1,036 | 124 | 1 | 66,310 | 15 | 9 | 23 | 3 | 103,987 | 109,401 |
| New Jersey | 309,856 | 20,690 | 387,707 | 29,802 | 706 | 2,294,053 | 2,566 | 328 | 80 | 402,215 | 37 | 24 | 11 | 6 | 696,758 | 749,784 |
| New Mexico | 262,555 | 9,202 | 237,643 | 16,473 | 174 | 932,466 | 8,299 | 977 | 4,523 | 1,249,009 | 923 | 409 | 178 | 105 | 191,042 | 213,500 |
| New York | 870,307 | 43,230 | 688,092 | 48,752 | 1,273 | 4,758,845 | 9,269 | 1,080 | 13,961 | 802,715 | 1,367 | 1,144 | 548 | 310 | 1,160,860 | 1,267,046 |
| North Carolina | 655,591 | 31,046 | 499,064 | 33,611 | 727 | 2,289,334 | 23,667 | 3,310 | 21,118 | 700,462 | 2,247 | 943 | 303 | 165 | 614,002 | 655,149 |
| North Dakota | 115,391 | 11,574 | 128,008 | 8,083 | 72 | 282,219 | 119 | 60 | 6,642 | 1,295,268 | 777 | 786 | 371 | 199 | 53,274 | 58,166 |
| Ohio | 2,681,314 | 51,554 | 1,145,357 | 72,251 | 2,160 | 4,697,200 | 50,783 | 7,934 | 16,124 | 1,070,910 | 7,714 | 3,538 | 1,500 | 1,131 | 1,001,059 | 1,092,677 |
| Oklahoma | 104,168 | 9,558 | 422,056 | 31,010 | 412 | 1,854,007 | 5,765 | 768 | 15,266 | 1,107,180 | 5,438 | 648 | 34 | 29 | 324,988 | 347,352 |
| Oregon | 55,987 | 18,601 | 207,286 | 19,481 | 334 | 1,454,001 | 729 | 92 | 4,249 | 1,849,960 | 1,103 | 54 | 54 | 310 | 340,267 | 363,147 |
| Pennsylvania | 1,899,006 | 60,532 | 976,345 | 65,211 | 1,918 | 4,377,701 | 42,015 | 5,525 | 24,309 | 1,432,694 | 6,383 | 2,006 | 826 | 1,400 | 1,043,563 | 1,113,027 |
| Rhode Island | 14,168 | 1,491 | 33,295 | 2,958 | 82 | 316,586 | 27 | 0 | 0 | 32,323 | 1 | 0 | 1 | 1 | 81,042 | 86,846 |
| South Carolina | 344,968 | 17,550 | 259,758 | 18,334 | 459 | 1,207,907 | 9,045 | 1,648 | 4,440 | 451,493 | 486 | 317 | 178 | 122 | 474,791 | 501,073 |
| South Dakota | 40,863 | 3,798 | 73,063 | 6,293 | 70 | 509,495 | 235 | 38 | 12,941 | 715,996 | 2,168 | 475 | 89 | 9 | 95,639 | 101,160 |
| Tennessee | 1,158,153 | 28,905 | 498,219 | 33,117 | 732 | 1,951,470 | 23,436 | 4,357 | 18,117 | 656,159 | 1,002 | 665 | 375 | 209 | 554,586 | 587,715 |
| Texas | 1,324,373 | 59,869 | 3,122,306 | 207,728 | 2,169 | 9,063,470 | 19,257 | 5,900 | 61,713 | 5,937,876 | 6,686 | 2,056 | 329 | 351 | 2,172,905 | 2,381,939 |
| Utah | 116,615 | 8,886 | 145,205 | 10,552 | 191 | 990,051 | 3,588 | 511 | 1,961 | 690,811 | 2,831 | 892 | 658 | 1,844 | 160,449 | 172,386 |
| Vermont | 8,185 | 1,764 | 21,631 | 2,149 | 62 | 202,077 | 12 | 0 | 3 | 100,889 | 3 | 3 | 1 | 2 | 58,570 | 61,481 |
| Virginia | 370,780 | 21,579 | 355,772 | 27,662 | 646 | 2,322,403 | 7,328 | 1,385 | 10,913 | 466,354 | 2,422 | 1,090 | 402 | 223 | 527,715 | 561,508 |
| Washington | 317,791 | 19,758 | 270,908 | 23,738 | 505 | 2,401,774 | 5,062 | 1,516 | 18,097 | 347,565 | 494 | 319 | 188 | 280 | 465,326 | 496,352 |
| West Virginia | 1,145,522 | 27,902 | 440,190 | 20,824 | 618 | 784,971 | 29,078 | 4,861 | 335 | 381,995 | 946 | 666 | 296 | 240 | 154,780 | 161,785 |
| Wisconsin | 670,610 | 23,795 | 380,932 | 26,842 | 592 | 1,892,865 | 15,406 | 2,328 | 32,054 | 706,684 | 8,395 | 927 | 324 | 213 | 476,956 | 512,284 |
| Wyoming | 211,134 | 13,388 | 234,634 | 14,273 | 86 | 589,965 | 13,110 | 1,727 | 5,159 | 486,720 | 116 | 103 | 44 | 25 | 102,467 | 111,091 |
| Contig. U.S. | 26,954,136 | 975,608 | 20,877,086 | 1,475,151 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 113,808 | 32,025 | 12,975 | 15,474 | 23,164,547 | 24,977,459 |

# TABLE 2-8b. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL U.S. POINT AND AREA SOURCE HYDROCARBON SPECIES EMISSIONS BY STATE

| State | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Penta | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes |
| Alabama | 1,573,771 | 209,627 | 155,998 | 320,528 | 116,617 | 35,204 | 5,329 | 2,319,833 | 756,285 | 257,270 | 2,385 | 482,416 |
| Arizona | 896,985 | 53,822 | 24,755 | 150,781 | 26,862 | 14,227 | 1,646 | 1,520,405 | 656,653 | 181,695 | 1,725 | 422,069 |
| Arkansas | 558,234 | 52,601 | 25,129 | 140,577 | 30,055 | 24,437 | 3,369 | 1,305,146 | 503,046 | 177,029 | 1,458 | 321,801 |
| California | 10,260,471 | 633,765 | 484,114 | 1,862,844 | 382,842 | 375,136 | 16,040 | 13,384,252 | 3,927,557 | 1,541,610 | 7,648 | 2,684,126 |
| Colorado | 1,485,865 | 93,589 | 36,497 | 271,698 | 40,933 | 29,784 | 3,191 | 2,127,989 | 794,754 | 263,880 | 2,383 | 517,496 |
| Connecticut | 732,077 | 72,370 | 25,185 | 181,076 | 29,891 | 19,613 | 7,270 | 1,606,122 | 353,013 | 170,873 | 558 | 309,577 |
| Delaware | 205,177 | 17,314 | 11,797 | 52,016 | 10,596 | 13,841 | 922 | 381,500 | 100,872 | 46,113 | 321 | 80,139 |
| Dist. of Colum. | 204,402 | 23,401 | 1,196 | 18,458 | 3,051 | 385 | 105 | 290,630 | 72,146 | 82,772 | 131 | 32,585 |
| Florida | 1,996,490 | 190,339 | 64,620 | 603,312 | 111,848 | 90,327 | 4,996 | 5,048,220 | 1,667,630 | 660,287 | 3,215 | 1,153,037 |
| Georgia | 1,085,897 | 106,257 | 51,751 | 360,837 | 76,178 | 62,646 | 6,224 | 2,946,840 | 981,268 | 325,575 | 2,947 | 700,443 |
| Idaho | 430,560 | 28,034 | 59,608 | 105,347 | 48,168 | 38,322 | 2,387 | 1,109,709 | 971,704 | 73,974 | 768 | 629,825 |
| Illinois | 5,380,945 | 325,420 | 129,931 | 666,352 | 127,598 | 113,602 | 12,821 | 5,880,990 | 1,480,249 | 633,184 | 5,548 | 1,087,219 |
| Indiana | 3,147,863 | 193,805 | 71,539 | 339,975 | 61,311 | 55,777 | 11,583 | 3,242,282 | 883,593 | 341,907 | 4,005 | 594,963 |
| Iowa | 1,139,796 | 54,180 | 15,863 | 174,794 | 30,326 | 22,480 | 1,305 | 1,560,840 | 427,234 | 194,612 | 1,667 | 268,938 |
| Kansas | 2,474,816 | 155,411 | 105,469 | 189,434 | 42,278 | 58,562 | 1,112 | 1,446,173 | 480,608 | 170,076 | 2,744 | 298,532 |
| Kentucky | 1,374,175 | 124,553 | 76,867 | 282,557 | 60,201 | 61,642 | 7,962 | 2,670,051 | 914,457 | 270,926 | 2,320 | 681,889 |
| Louisiana | 2,084,408 | 245,672 | 197,016 | 372,151 | 91,413 | 123,265 | 2,452 | 3,488,418 | 1,800,977 | 827,238 | 2,032 | 931,961 |
| Maine | 309,467 | 51,938 | 26,038 | 70,755 | 13,461 | 23,856 | 8,232 | 661,775 | 129,826 | 63,819 | 270 | 152,992 |
| Maryland | 1,393,384 | 213,749 | 182,598 | 363,460 | 125,305 | 50,603 | 5,860 | 2,062,491 | 489,473 | 226,538 | 1,069 | 387,379 |
| Massachusetts | 2,766,519 | 130,616 | 51,565 | 461,183 | 59,912 | 57,754 | 5,858 | 2,978,536 | 683,158 | 320,678 | 1,101 | 530,006 |
| Michigan | 3,599,190 | 262,855 | 94,209 | 549,635 | 103,574 | 110,405 | 16,521 | 5,584,447 | 1,202,002 | 540,016 | 2,214 | 922,305 |
| Minnesota | 1,332,039 | 121,895 | 51,657 | 281,453 | 51,668 | 64,524 | 10,332 | 2,733,721 | 723,385 | 315,331 | 1,813 | 548,556 |
| Mississippi | 875,921 | 53,722 | 33,106 | 160,996 | 33,654 | 39,125 | 4,703 | 1,507,955 | 450,615 | 137,992 | 1,196 | 337,040 |
| Missouri | 2,230,248 | 157,675 | 71,577 | 341,325 | 59,661 | 55,707 | 12,647 | 3,568,453 | 1,179,046 | 425,759 | 2,317 | 765,362 |
| Montana | 468,310 | 32,253 | 71,890 | 120,748 | 54,709 | 47,323 | 2,290 | 1,169,951 | 1,017,435 | 70,750 | 1,429 | 655,280 |
| Nebraska | 546,837 | 28,316 | 9,516 | 100,912 | 16,823 | 17,732 | 670 | 832,578 | 257,722 | 99,641 | 1,233 | 159,891 |
| Nevada | 298,220 | 21,304 | 8,682 | 71,389 | 11,379 | 10,789 | 770 | 536,920 | 203,047 | 69,281 | 866 | 137,317 |
| New Hampshire | 253,471 | 31,403 | 15,062 | 55,770 | 10,431 | 8,508 | 4,357 | 546,596 | 98,438 | 43,540 | 127 | 111,563 |
| New Jersey | 2,757,208 | 161,291 | 106,216 | 506,219 | 93,946 | 134,033 | 10,574 | 4,093,330 | 973,665 | 442,308 | 1,914 | 736,594 |
| New Mexico | 1,124,795 | 88,358 | 54,137 | 142,060 | 23,652 | 60,161 | 3,063 | 1,007,218 | 312,587 | 121,450 | 1,856 | 221,475 |
| New York | 5,486,000 | 330,535 | 218,091 | 908,735 | 174,360 | 159,989 | 27,398 | 7,016,755 | 1,440,965 | 674,394 | 2,106 | 1,251,982 |
| North Carolina | 2,017,901 | 190,226 | 76,421 | 369,005 | 71,208 | 58,440 | 14,924 | 3,623,809 | 956,294 | 353,734 | 2,193 | 711,531 |
| North Dakota | 260,510 | 12,471 | 7,131 | 41,316 | 7,710 | 7,032 | 291 | 318,645 | 109,770 | 42,115 | 768 | 64,435 |
| Ohio | 4,705,255 | 305,838 | 103,317 | 650,221 | 112,347 | 91,706 | 18,485 | 5,867,268 | 1,546,811 | 627,042 | 6,018 | 1,110,201 |
| Oklahoma | 1,043,501 | 131,690 | 152,523 | 284,130 | 93,091 | 87,690 | 4,775 | 1,757,806 | 569,149 | 176,897 | 1,373 | 413,355 |
| Oregon | 1,146,557 | 92,788 | 57,838 | 198,968 | 49,745 | 36,867 | 6,562 | 1,886,315 | 873,792 | 192,263 | 2,155 | 578,528 |
| Pennsylvania | 3,390,799 | 332,268 | 170,193 | 656,095 | 124,571 | 128,805 | 29,232 | 5,860,445 | 1,477,528 | 570,729 | 4,951 | 1,134,168 |
| Rhode Island | 297,983 | 19,886 | 6,513 | 56,233 | 9,077 | 9,398 | 1,284 | 499,415 | 104,316 | 49,250 | 150 | 85,884 |
| South Carolina | 1,350,544 | 86,039 | 37,137 | 216,852 | 40,853 | 32,610 | 3,829 | 2,783,383 | 681,306 | 238,179 | 1,120 | 455,019 |
| South Dakota | 288,618 | 16,303 | 20,223 | 55,791 | 19,018 | 17,209 | 693 | 522,694 | 349,198 | 53,037 | 367 | 222,061 |
| Tennessee | 1,648,692 | 141,478 | 60,037 | 301,568 | 54,473 | 48,850 | 12,913 | 3,180,878 | 848,711 | 336,381 | 2,761 | 658,712 |
| Texas | 10,949,271 | 552,430 | 579,425 | 1,622,612 | 353,678 | 563,229 | 3,349 | 12,339,690 | 4,798,633 | 1,808,913 | 8,657 | 2,727,929 |
| Utah | 622,059 | 39,437 | 17,872 | 128,881 | 19,625 | 20,713 | 1,387 | 961,298 | 323,377 | 124,809 | 1,875 | 209,609 |
| Vermont | 128,745 | 21,031 | 10,607 | 29,449 | 5,599 | 4,452 | 3,521 | 278,131 | 59,980 | 26,560 | 126 | 68,482 |
| Virginia | 1,643,629 | 166,156 | 64,313 | 338,089 | 57,062 | 52,722 | 12,118 | 3,097,842 | 777,212 | 330,061 | 2,319 | 598,216 |
| Washington | 1,476,488 | 110,331 | 70,487 | 306,982 | 69,590 | 59,018 | 6,886 | 2,731,880 | 1,070,991 | 292,561 | 1,814 | 728,113 |
| West Virginia | 327,217 | 44,587 | 23,232 | 190,858 | 20,680 | 15,028 | 5,716 | 843,050 | 269,844 | 89,889 | 1,106 | 213,316 |
| Wisconsin | 1,778,628 | 139,165 | 50,648 | 290,622 | 49,660 | 49,776 | 11,432 | 2,742,188 | 651,480 | 308,655 | 1,832 | 507,707 |
| Wyoming | 444,205 | 30,067 | 40,121 | 96,998 | 20,467 | 30,988 | 986 | 542,780 | 209,926 | 66,074 | 2,287 | 120,507 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 | 28,722,513 |

# TABLE 2-8b (continued)

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| Alabama | 89,501 | 243,603 | 205,961 | 45,062 | 67,071 | 249,170 | 50,371 | 21,887 | 72,265 | 45,057 | 19,743 |
| Arizona | 59,304 | 174,565 | 90,847 | 18,922 | 49,833 | 190,691 | 36,076 | 21,823 | 62,885 | 23,869 | 8,026 |
| Arkansas | 52,999 | 151,319 | 127,830 | 27,638 | 43,493 | 159,273 | 31,923 | 8,380 | 28,718 | 28,515 | 13,611 |
| California | 601,833 | 1,584,475 | 853,308 | 179,897 | 375,576 | 2,156,076 | 164,316 | 98,469 | 868,194 | 321,086 | 110,828 |
| Colorado | 86,940 | 286,203 | 158,408 | 32,321 | 66,789 | 314,604 | 49,907 | 19,947 | 64,785 | 39,890 | 14,501 |
| Connecticut | 57,234 | 281,066 | 266,244 | 55,178 | 34,433 | 215,616 | 11,899 | 5,370 | 105,038 | 62,707 | 19,773 |
| Delaware | 17,754 | 104,644 | 57,451 | 8,471 | 11,509 | 94,179 | 7,169 | 2,186 | 41,253 | 21,433 | 3,504 |
| Dist. of Colum. | 11,251 | 38,583 | 15,058 | 1,978 | 16,965 | 25,185 | 2,737 | 6,187 | 4,636 | 4,675 | 4,195 |
| Florida | 229,249 | 617,922 | 312,838 | 60,615 | 177,855 | 687,059 | 68,558 | 80,150 | 291,242 | 102,761 | 39,105 |
| Georgia | 109,761 | 423,006 | 280,901 | 55,337 | 87,188 | 346,609 | 61,687 | 24,059 | 136,169 | 82,615 | 36,965 |
| Idaho | 20,278 | 70,819 | 80,110 | 17,959 | 19,006 | 76,609 | 16,064 | 4,698 | 12,527 | 8,714 | 3,994 |
| Illinois | 204,777 | 772,740 | 566,170 | 119,973 | 179,184 | 654,043 | 117,253 | 28,759 | 324,306 | 221,031 | 90,195 |
| Indiana | 133,299 | 432,474 | 426,143 | 91,273 | 90,543 | 402,404 | 84,240 | 8,726 | 227,464 | 160,694 | 29,901 |
| Iowa | 58,579 | 176,389 | 78,445 | 16,790 | 42,367 | 194,161 | 34,862 | 4,958 | 45,902 | 30,748 | 11,986 |
| Kansas | 61,218 | 174,385 | 88,969 | 14,440 | 68,225 | 217,084 | 57,995 | 7,101 | 50,294 | 29,807 | 17,188 |
| Kentucky | 101,038 | 262,336 | 278,477 | 61,032 | 73,033 | 365,889 | 52,507 | 12,834 | 91,699 | 55,738 | 34,538 |
| Louisiana | 276,075 | 341,397 | 172,142 | 26,884 | 158,281 | 560,405 | 64,275 | 29,712 | 160,493 | 86,379 | 30,115 |
| Maine | 20,448 | 96,607 | 245,155 | 54,220 | 25,794 | 77,004 | 5,730 | 3,557 | 26,388 | 21,949 | 17,005 |
| Maryland | 83,079 | 277,321 | 230,376 | 48,135 | 58,151 | 309,082 | 22,435 | 11,559 | 87,166 | 70,755 | 34,690 |
| Massachusetts | 108,988 | 371,886 | 253,931 | 53,991 | 72,912 | 961,810 | 23,316 | 14,552 | 305,718 | 121,552 | 66,391 |
| Michigan | 194,116 | 643,102 | 634,751 | 157,943 | 132,620 | 571,711 | 46,636 | 15,765 | 309,737 | 264,206 | 82,420 |
| Minnesota | 96,152 | 330,655 | 370,252 | 77,633 | 86,113 | 330,437 | 38,445 | 9,118 | 120,696 | 86,368 | 26,848 |
| Mississippi | 44,766 | 172,776 | 179,149 | 36,189 | 44,256 | 267,383 | 24,991 | 11,733 | 74,158 | 47,226 | 9,718 |
| Missouri | 159,348 | 447,560 | 516,632 | 97,448 | 104,642 | 386,118 | 56,082 | 20,155 | 188,836 | 176,818 | 49,833 |
| Montana | 21,505 | 68,376 | 76,475 | 17,169 | 21,816 | 152,828 | 29,867 | 3,776 | 12,484 | 7,597 | 2,136 |
| Nebraska | 31,904 | 266,253 | 105,508 | 8,906 | 29,109 | 125,688 | 25,764 | 5,019 | 116,850 | 86,111 | 5,849 |
| Nevada | 22,968 | 74,367 | 43,300 | 7,910 | 23,959 | 76,174 | 18,123 | 12,298 | 20,730 | 8,132 | 1,709 |
| New Hampshire | 16,444 | 77,267 | 136,578 | 32,243 | 10,227 | 65,899 | 2,705 | 2,241 | 29,880 | 29,900 | 7,013 |
| New Jersey | 183,820 | 495,186 | 428,671 | 88,890 | 136,296 | 781,319 | 43,853 | 13,557 | 290,770 | 114,213 | 62,114 |
| New Mexico | 45,818 | 149,511 | 143,272 | 24,461 | 69,805 | 145,756 | 38,933 | 9,236 | 27,194 | 11,532 | 2,586 |
| New York | 249,269 | 861,816 | 924,138 | 212,338 | 140,839 | 1,056,132 | 44,518 | 30,370 | 297,159 | 219,671 | 102,881 |
| North Carolina | 114,625 | 613,488 | 505,266 | 111,876 | 90,602 | 376,800 | 46,766 | 25,189 | 179,863 | 150,545 | 40,532 |
| North Dakota | 11,712 | 35,477 | 17,738 | 3,598 | 13,433 | 80,657 | 16,040 | 4,299 | 7,096 | 3,995 | 1,226 |
| Ohio | 229,760 | 736,290 | 681,147 | 153,976 | 157,209 | 753,465 | 127,213 | 18,187 | 415,042 | 224,326 | 80,248 |
| Oklahoma | 65,700 | 205,473 | 195,591 | 38,620 | 64,190 | 312,669 | 29,221 | 12,408 | 59,881 | 31,171 | 10,160 |
| Oregon | 55,358 | 196,172 | 217,570 | 49,540 | 47,373 | 194,580 | 45,412 | 7,551 | 53,671 | 35,018 | 25,949 |
| Pennsylvania | 225,515 | 775,370 | 976,773 | 215,513 | 160,949 | 806,177 | 105,124 | 23,703 | 308,948 | 205,283 | 104,205 |
| Rhode Island | 18,262 | 64,222 | 52,729 | 12,022 | 13,110 | 57,583 | 3,270 | 1,962 | 26,925 | 16,629 | 7,575 |
| South Carolina | 84,966 | 463,241 | 237,428 | 34,329 | 55,479 | 228,471 | 26,512 | 11,849 | 269,015 | 283,609 | 55,381 |
| South Dakota | 13,649 | 43,718 | 30,857 | 6,305 | 13,670 | 49,333 | 7,671 | 3,084 | 7,640 | 4,614 | 1,484 |
| Tennessee | 121,130 | 364,231 | 439,913 | 97,337 | 84,342 | 347,580 | 61,082 | 11,866 | 222,452 | 113,755 | 44,837 |
| Texas | 713,885 | 1,375,843 | 594,260 | 68,527 | 462,742 | 2,302,927 | 206,478 | 98,762 | 777,994 | 409,054 | 96,738 |
| Utah | 39,639 | 121,038 | 67,823 | 14,360 | 36,190 | 147,018 | 39,190 | 5,677 | 27,658 | 14,695 | 3,831 |
| Vermont | 8,529 | 40,183 | 101,578 | 23,967 | 5,913 | 33,191 | 2,662 | 1,263 | 13,751 | 9,035 | 4,008 |
| Virginia | 113,069 | 375,119 | 418,972 | 97,394 | 86,086 | 397,547 | 50,108 | 12,626 | 165,600 | 96,536 | 47,763 |
| Washington | 89,491 | 289,661 | 257,552 | 56,192 | 73,547 | 358,434 | 38,367 | 16,703 | 71,429 | 45,846 | 23,316 |
| West Virginia | 26,632 | 102,562 | 172,803 | 40,376 | 23,292 | 114,005 | 23,208 | 3,408 | 15,629 | 12,410 | 4,458 |
| Wisconsin | 91,027 | 380,425 | 404,415 | 87,009 | 77,741 | 302,076 | 38,612 | 7,921 | 151,387 | 124,095 | 82,950 |
| Wyoming | 22,126 | 61,308 | 42,571 | 8,635 | 27,780 | 120,680 | 47,775 | 1,653 | 6,362 | 4,484 | 636 |
| Contig. U.S. | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

## TABLE 2-9a. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL CANADIAN POINT AND AREA SOURCE EMISSIONS BY PROVINCE

| Province | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alberta | 660,788 | 7,677 | 447,652 | 37,913 | 0 | 3,023,686 | 0 | 0 | 83,323 | 8,828,141 | 709 | 249 | 152 | 66 | 685,711 | 898,962 |
| British Columbia | 170,640 | 13,903 | 197,116 | 20,060 | 0 | 2,153,713 | 0 | 0 | 7,012 | 1,967,089 | 1,354 | 159 | 266 | 19 | 283,067 | 528,424 |
| Manitoba | 533,199 | 13,790 | 91,581 | 10,811 | 0 | 1,603,510 | 0 | 0 | 21,011 | 3,142,219 | 602 | 153 | 55 | 28 | 233,681 | 325,091 |
| New Brunswick | 223,053 | 14,963 | 55,120 | 3,640 | 0 | 347,965 | 0 | 0 | 1,024 | 415,749 | 743 | 233 | 232 | 53 | 51,010 | 114,009 |
| Newfoundland | 65,635 | 4,604 | 33,220 | 2,710 | 0 | 197,323 | 0 | 0 | 123 | 280,665 | 508 | 178 | 1 | 0 | 28,948 | 78,892 |
| Nova Scotia | 212,343 | 11,094 | 78,375 | 5,101 | 0 | 393,785 | 0 | 0 | 1,646 | 763,019 | 483 | 250 | 238 | 389 | 73,664 | 149,945 |
| Ontario | 1,954,125 | 45,947 | 517,732 | 46,017 | 0 | 4,424,186 | 0 | 0 | 46,260 | 6,604,382 | 6,461 | 1,265 | 838 | 1,350 | 733,251 | 1,482,757 |
| Prince Edward | 4,973 | 343 | 5,624 | 506 | 0 | 57,947 | 0 | 0 | 832 | 41,629 | 0 | 0 | 0 | 0 | 6,501 | 17,202 |
| Quebec | 1,210,291 | 50,699 | 297,214 | 24,785 | 0 | 2,409,711 | 0 | 0 | 16,564 | 2,484,937 | 3,883 | 761 | 687 | 282 | 390,108 | 946,493 |
| Saskatchewan | 60,125 | 4,250 | 155,082 | 19,135 | 0 | 3,373,897 | 0 | 0 | 31,879 | 6,980,762 | 1,936 | 1,623 | 821 | 412 | 505,957 | 593,482 |
| Canada | 5,095,172 | 167,270 | 1,878,716 | 170,677 | NR | 17,985,723 | NR | NR | 209,674 | 31,508,592 | 16,680 | 4,870 | 3,289 | 2,599 | 2,991,898 | 5,135,257 |

NR = NOT REPORTED

## TABLE 2-9b. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - ANNUAL CANADIAN POINT AND AREA SOURCE HYDROCARBON SPECIES EMISSIONS BY PROVINCE

| Province | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pen | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| Alberta | 11,767,688 | 244,099 | 353,461 | 497,510 | 129,735 | 188,312 | 11,632 | 3,153,143 | 2,611,986 | 413,931 | 3,606 | 1,700,819 | 168,267 | 207,056 | 357,078 | 79,550 | 98,130 | 455,622 | 88,824 | 23,656 | 54,432 | 22,228 | 8,027 |
| Brit.Col. | 13,744,136 | 100,764 | 78,290 | 224,948 | 44,684 | 57,496 | 8,916 | 1,393,282 | 495,673 | 170,165 | 2,105 | 386,827 | 49,748 | 159,900 | 282,269 | 63,336 | 50,425 | 290,111 | 46,880 | 20,444 | 56,317 | 35,850 | 3,108 |
| Manitoba | 5,143,306 | 25,654 | 77,185 | 117,894 | 57,563 | 53,469 | 100 | 1,145,443 | 1,139,139 | 82,670 | 1,122 | 716,521 | 21,680 | 55,092 | 19,652 | 3,637 | 23,338 | 61,738 | 24,135 | 4,507 | 8,537 | 9,589 | 1,296 |
| New Brun. | 3,540,911 | 19,213 | 24,317 | 68,831 | 13,490 | 24,315 | 266 | 286,046 | 65,434 | 30,142 | 305 | 49,121 | 9,968 | 27,597 | 16,514 | 3,458 | 9,310 | 84,721 | 6,381 | 4,249 | 8,719 | 5,738 | 683 |
| Newfound. | 2,816,537 | 10,116 | 10,341 | 37,951 | 6,734 | 10,099 | 48 | 167,312 | 42,847 | 20,811 | 273 | 30,369 | 5,649 | 18,777 | 7,577 | 1,672 | 6,262 | 58,197 | 5,697 | 2,107 | 4,911 | 4,344 | 543 |
| Nova Scot | 4,270,917 | 32,081 | 35,417 | 86,577 | 13,651 | 26,381 | 2,329 | 362,041 | 81,958 | 45,396 | 440 | 75,160 | 12,438 | 44,960 | 72,679 | 16,943 | 10,030 | 109,845 | 9,207 | 1,578 | 7,533 | 7,445 | 831 |
| Ontario | 42,288,130 | 141,549 | 165,843 | 592,743 | 155,139 | 181,961 | 439 | 4,035,725 | 1,849,973 | 731,441 | 3,528 | 1,275,151 | 165,690 | 352,960 | 154,512 | 25,018 | 109,588 | 808,285 | 76,953 | 28,863 | 157,779 | 135,767 | 10,331 |
| Prince Ed | 604,107 | 1,756 | 669 | 6,875 | 1,302 | 1,382 | 28 | 39,333 | 10,093 | 5,517 | 46 | 7,379 | 1,449 | 5,076 | 2,302 | 504 | 1,414 | 8,326 | 967 | 300 | 720 | 1,034 | 117 |
| Quebec | 31,357,047 | 122,510 | 143,555 | 473,749 | 91,040 | 146,480 | 248 | 2,221,058 | 536,115 | 398,776 | 2,126 | 396,238 | 92,840 | 223,733 | 96,794 | 17,256 | 62,645 | 668,593 | 44,986 | 16,021 | 119,173 | 78,463 | 7,211 |
| Saskatch. | 4,856,581 | 61,512 | 206,981 | 232,071 | 130,606 | 124,927 | 3,789 | 2,300,349 | 2,601,774 | 103,137 | 1,345 | 1,680,370 | 19,920 | 77,070 | 120,057 | 26,729 | 27,304 | 80,939 | 28,114 | 4,067 | 6,649 | 9,256 | 955 |
| Canada | 120,389,361 | 759,253 | 1,096,057 | 2,339,149 | 643,943 | 814,803 | 27,796 | 15,103,733 | 9,434,992 | 2,001,986 | 14,897 | 6,317,955 | 547,649 | 1,172,180 | 1,129,434 | 238,103 | 398,445 | 2,626,378 | 330,143 | 105,814 | 424,770 | 309,714 | 33,100 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

TABLE 2-10. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2 - SEASONAL VARIATION IN EMISSIONS OF $SO_2$, $NO_x$ and VOC

| | Emissions percentages | | |
|---|---|---|---|
| | $SO_2$ | $NO_x$ | VOC |
| Winter | 26.15 | 24.80 | 24.62 |
| Spring | 24.68 | 25.02 | 26.62 |
| Summer | 24.65 | 25.47 | 24.81 |
| Fall | 24.52 | 24.71 | 23.95 |
| | 100.00 | 100.00 | 100.00 |

season, showing a variation of less than one percentage point. $SO_2$ emissions show an intermediate degree of variation, reaching a maximum in winter but remaining fairly constant throughout the remainder of the year.

Figure 2-23 illustrates the hourly variation of $SO_2$, $NO_x$, and VOC emissions for one possible scenario, a typical summer weekday. Hours are expressed in Greenwich Mean Time; as an example, hour 17 would correspond to 1:00 p.m. Eastern Daylight Time. Note that diurnal $SO_2$ emissions exhibit relatively little variation, indicative of a more uniform operating pattern, while $NO_x$ and VOC emissions, highly dependent on highway traffic, vary more widely over a 24-hour period.

The spatial resolution capabilities of the 1980 NAPAP Version 5.2 inventory are shown in Figures 2-24 to 2-32, which illustrate emissions apportioned into grid cells measuring 1/6 degree latitude by 1/4 degree longitude (approximately 20 x 20 km) for U.S. point and area source emissions of $SO_2$, $NO_x$, and VOC. Figures 2-33 to 2-37 provide gridded emissions at the 80 x 80 km level for clarity of presentation, and show hourly emissions distribution for a typical summer weekday at 1700 GMT.

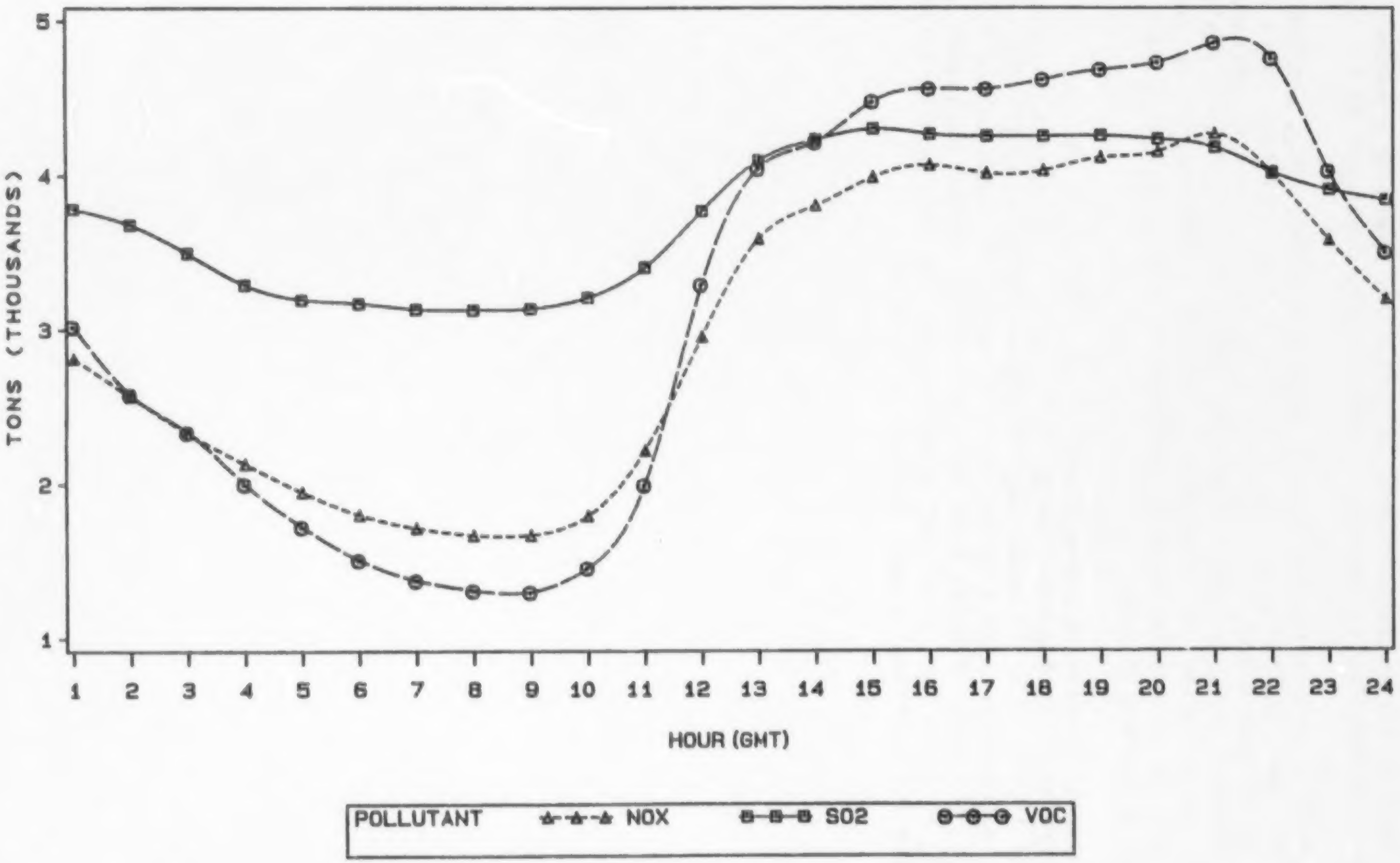


Figure 2-23. 1980 NAPAP Emissions Inventory Version 5.2 - hourly emissions patterns for $SO_2$, $NO_x$, and VOC for a typical summer weekday.

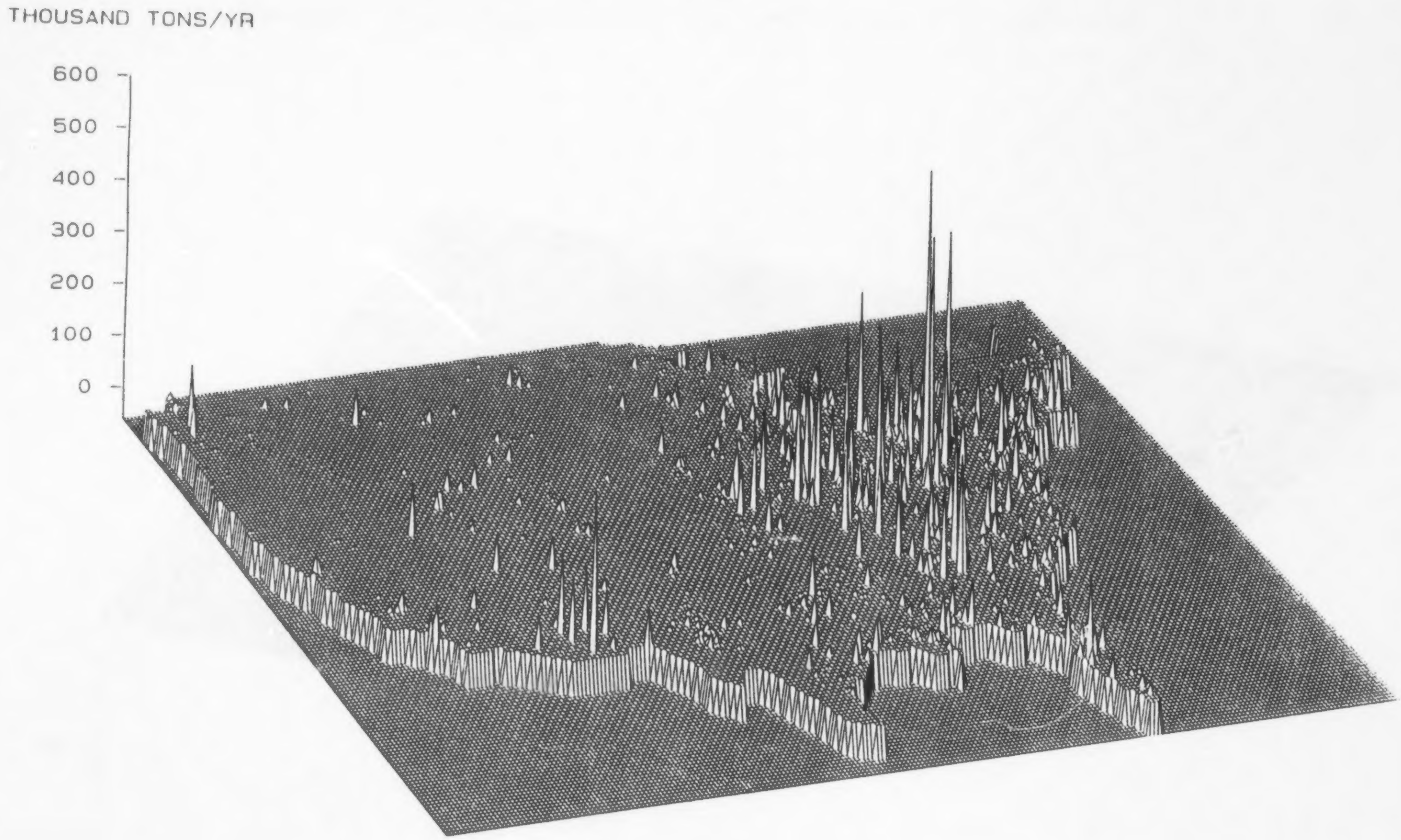


Figure 2-24. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. point sources.

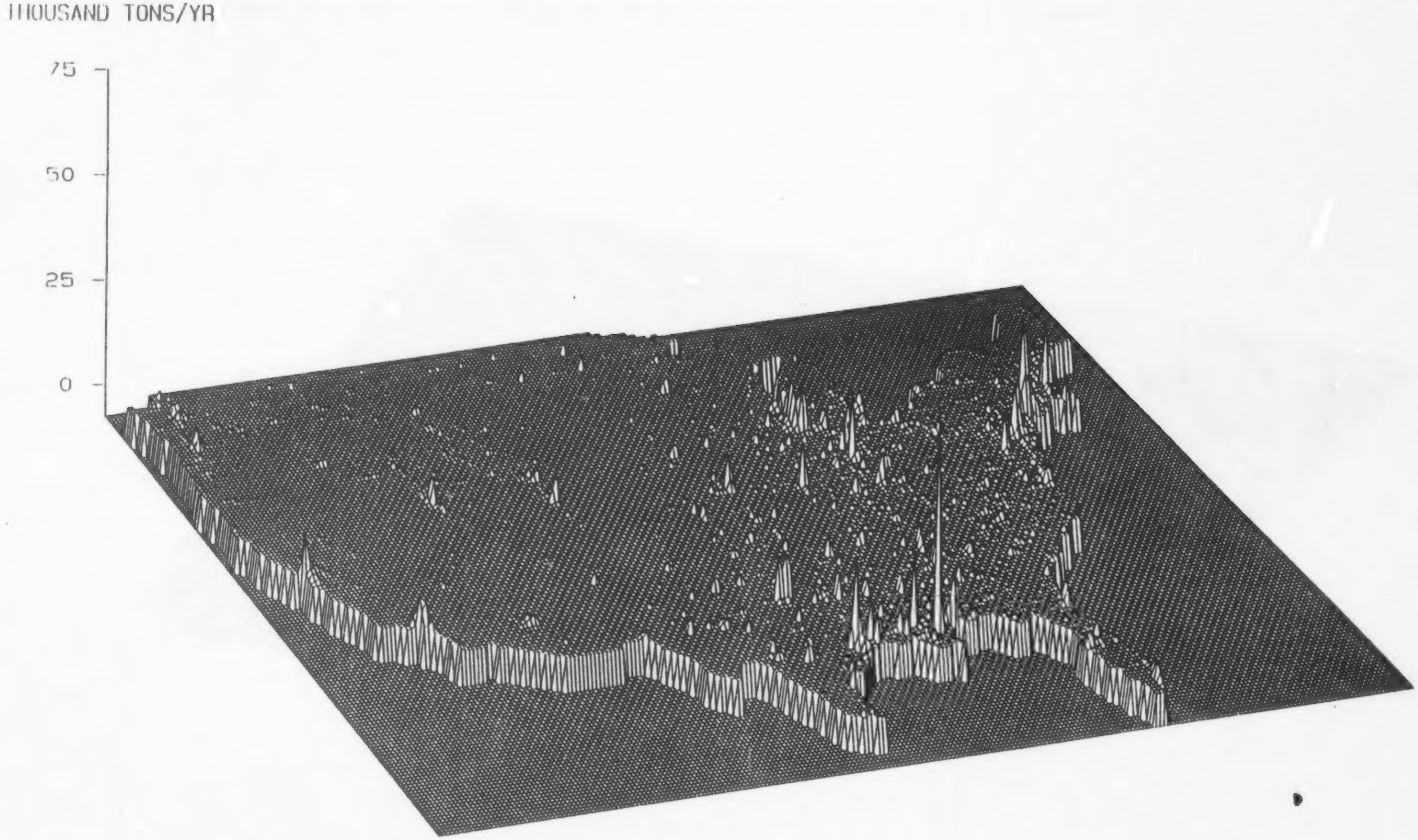


Figure 2-25. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. area sources.

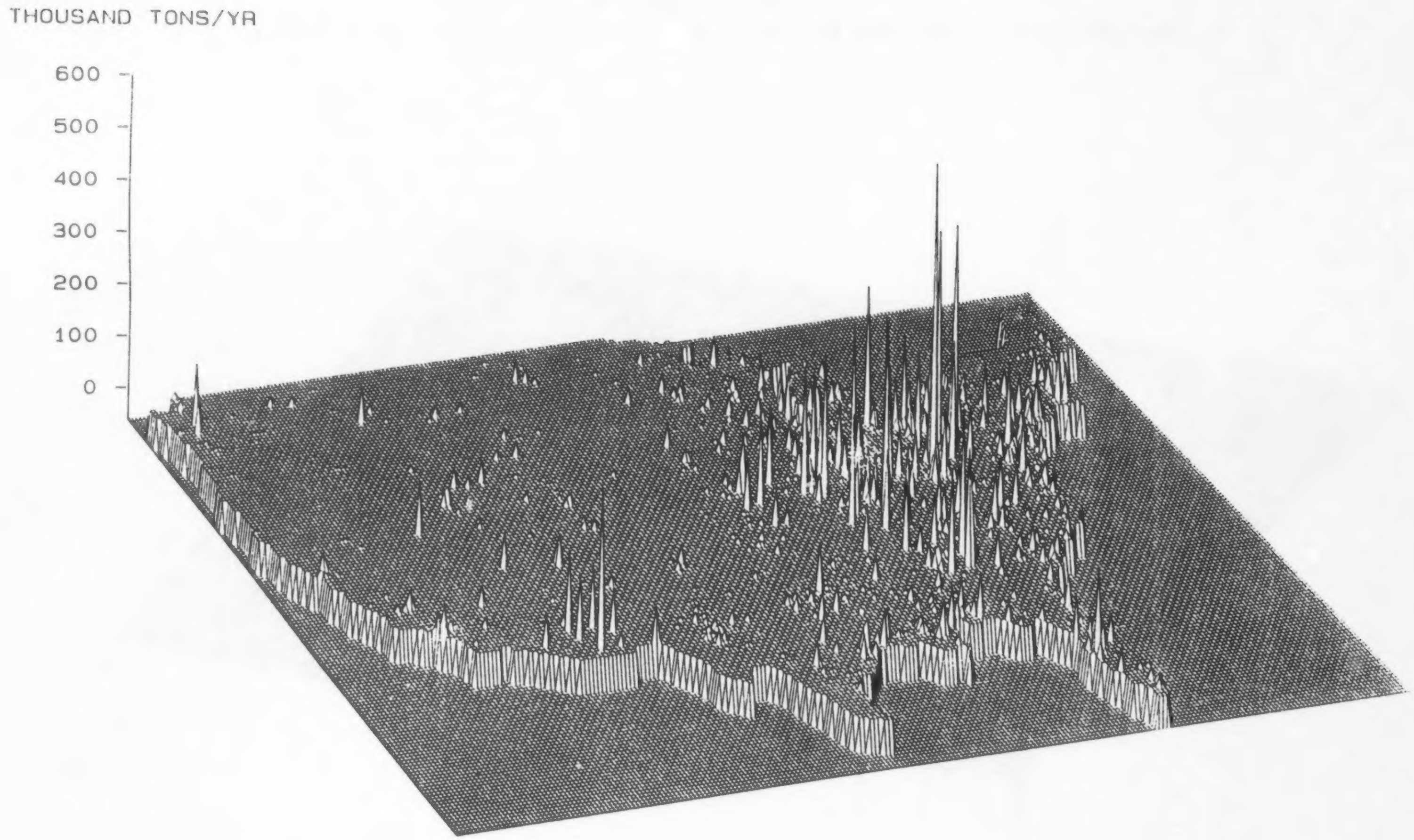


Figure 2-26. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $SO_2$ emissions, U.S. point and area sources.

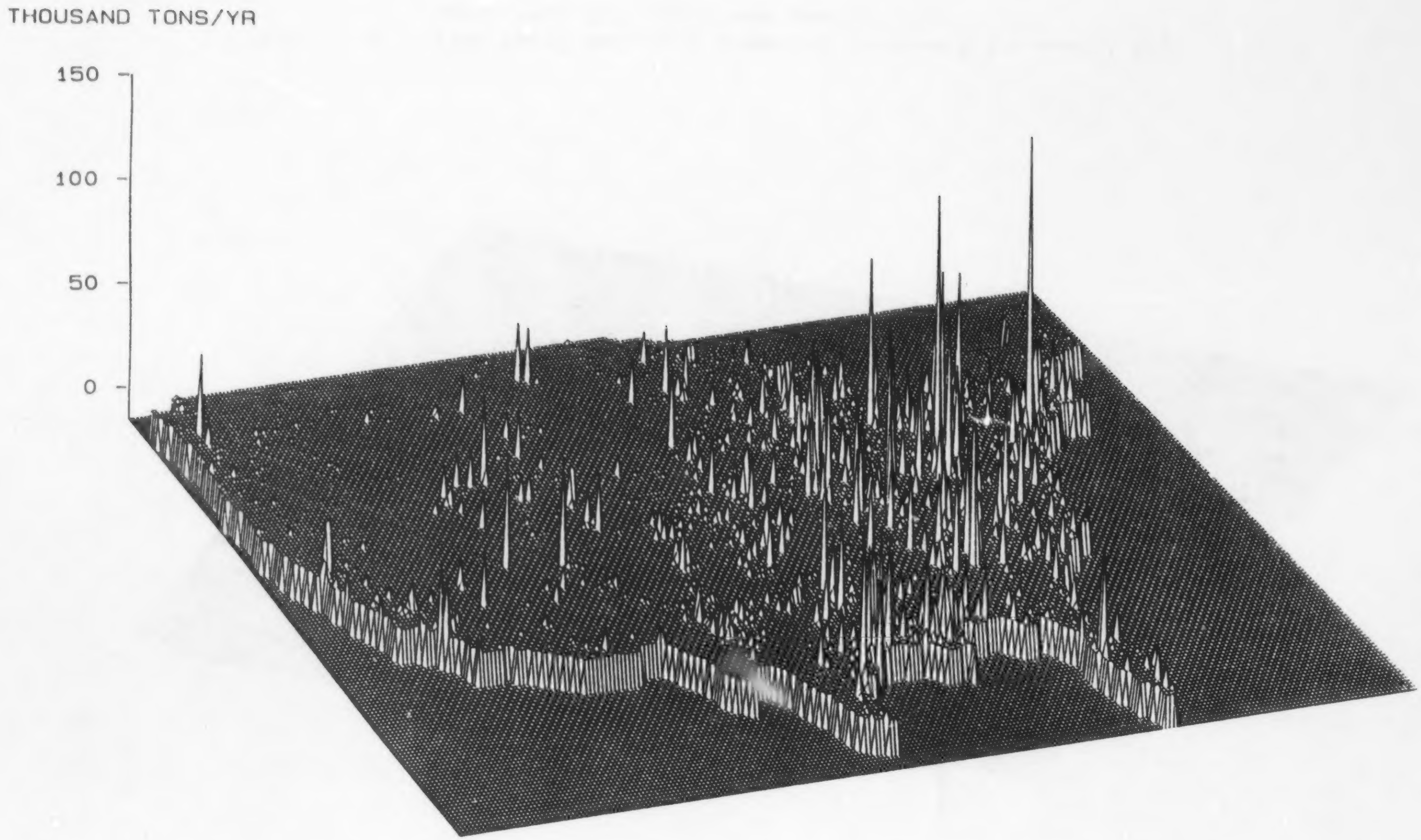


Figure 2-27. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. point sources.

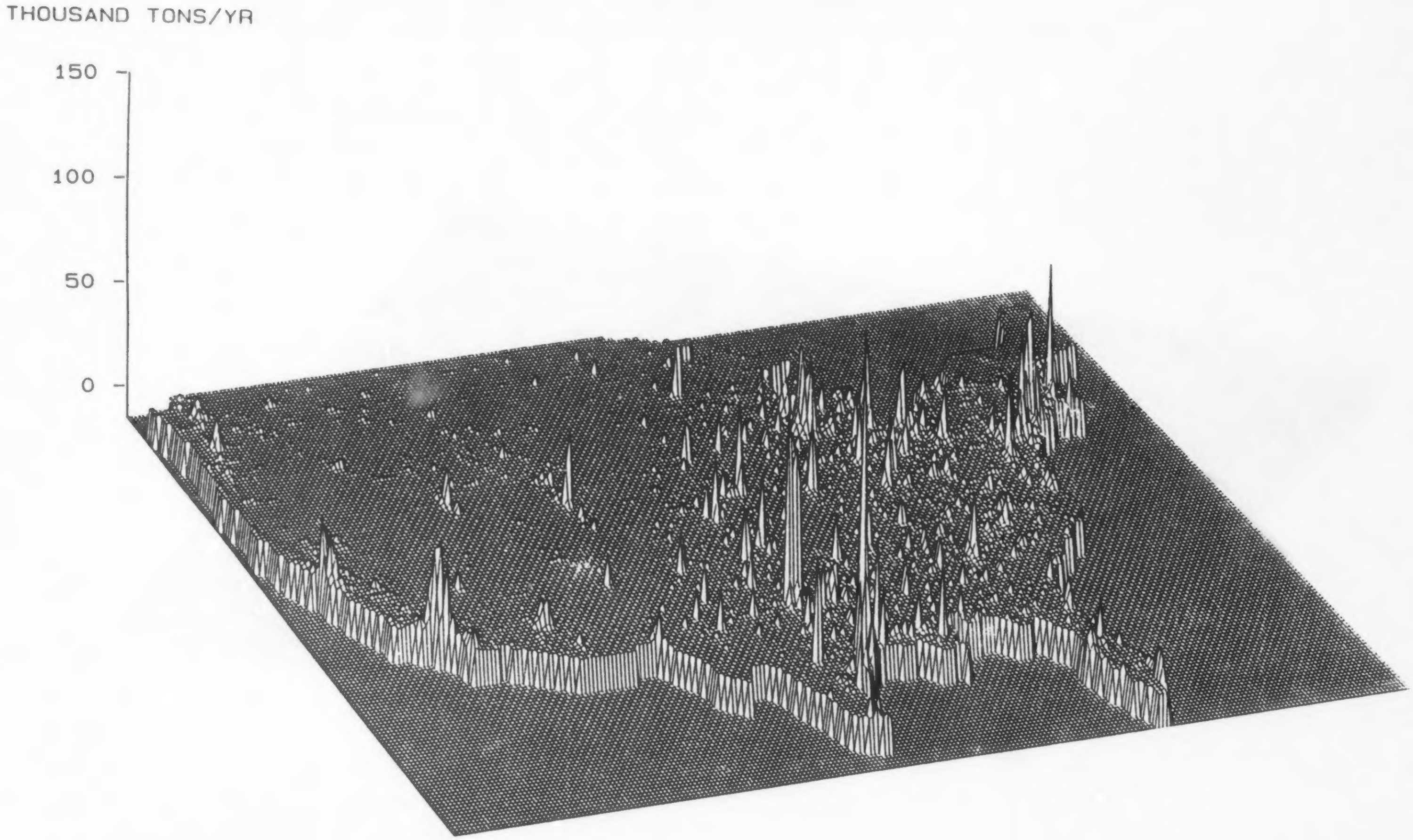


Figure 2-28. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. area sources.

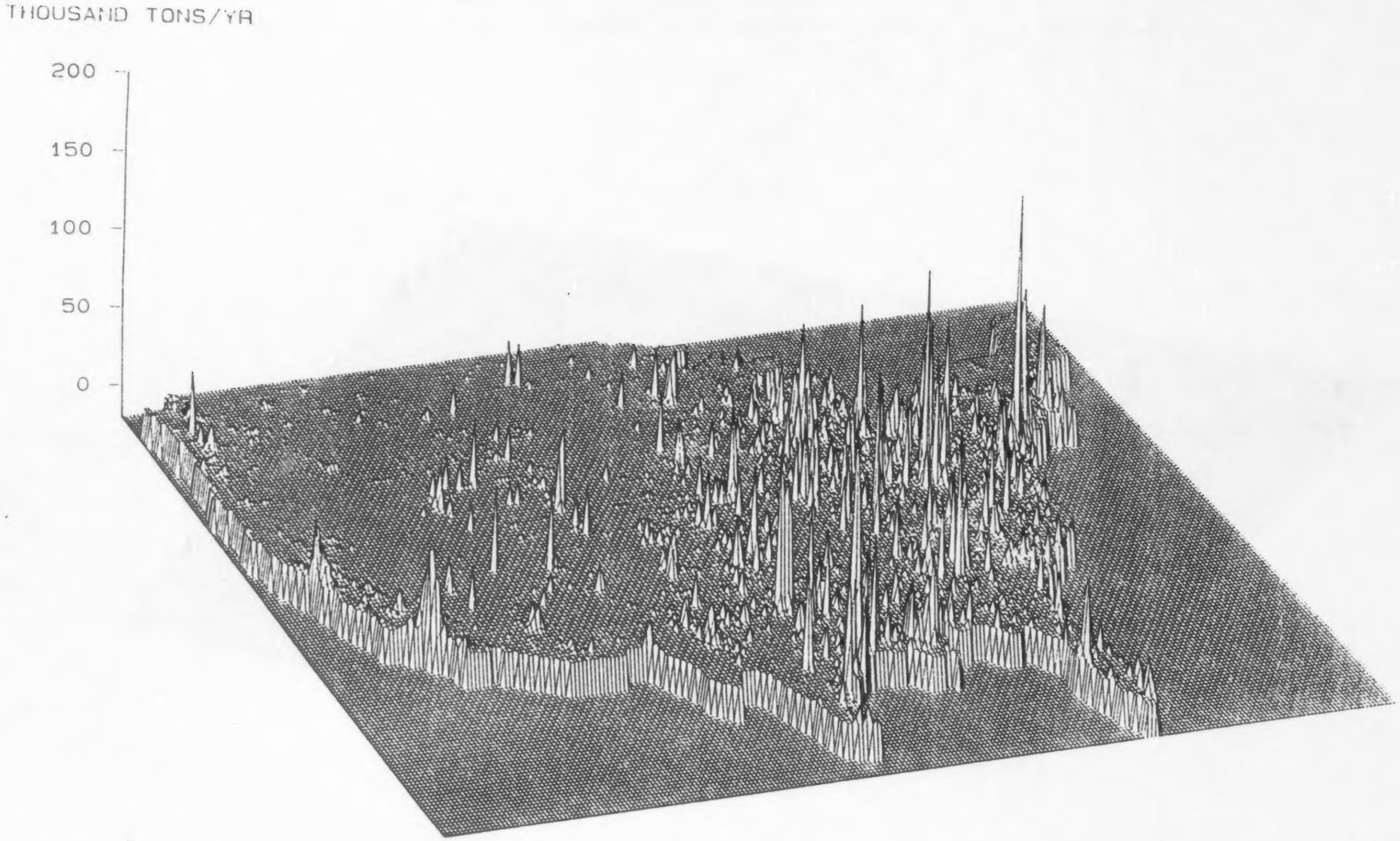


Figure 2-29. 1980 NAPAP Emissions Inventory Version 5.2 - Annual $NO_x$ emissions, U.S. point and area sources.

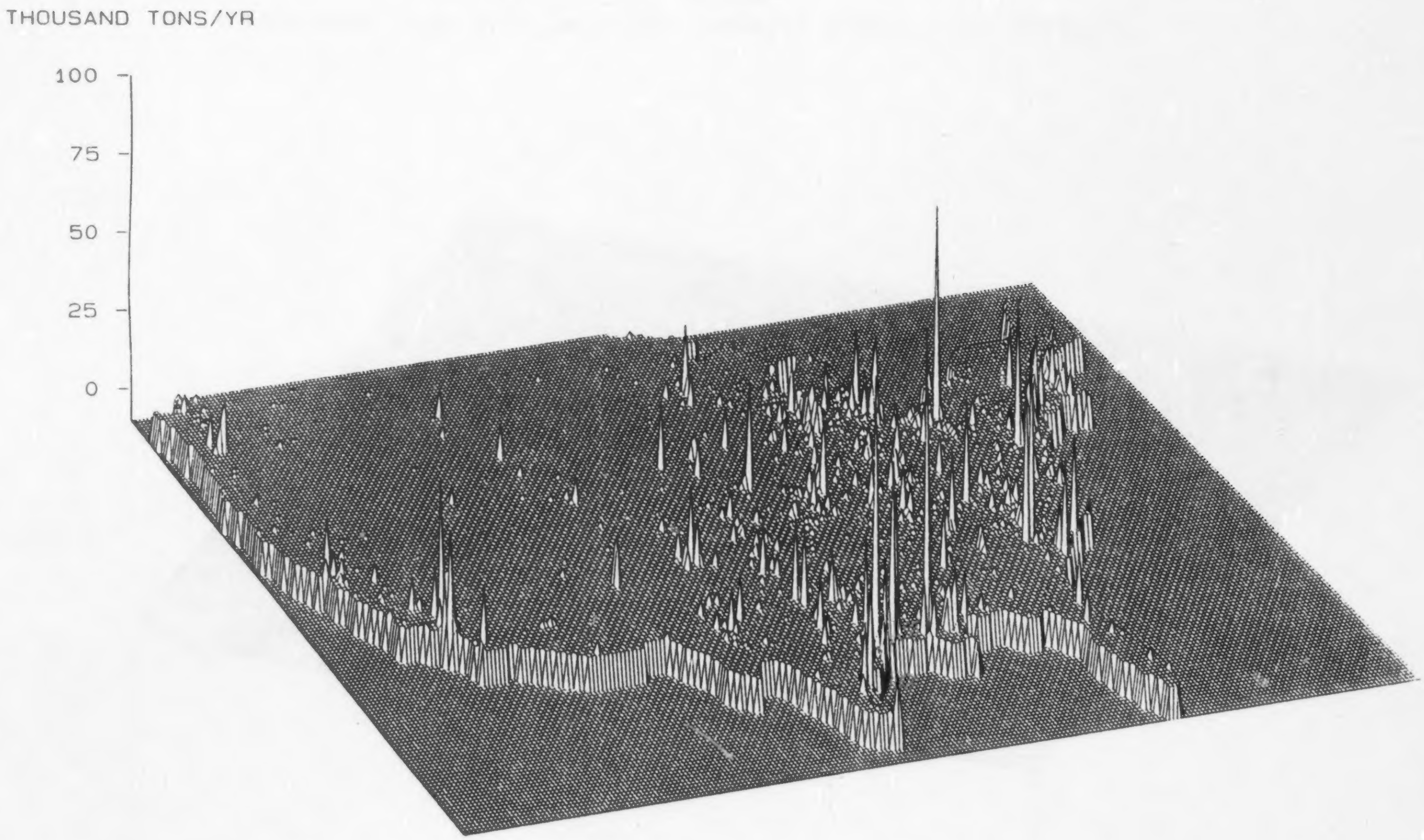


Figure 2-30. 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emissions, U.S. point sources.

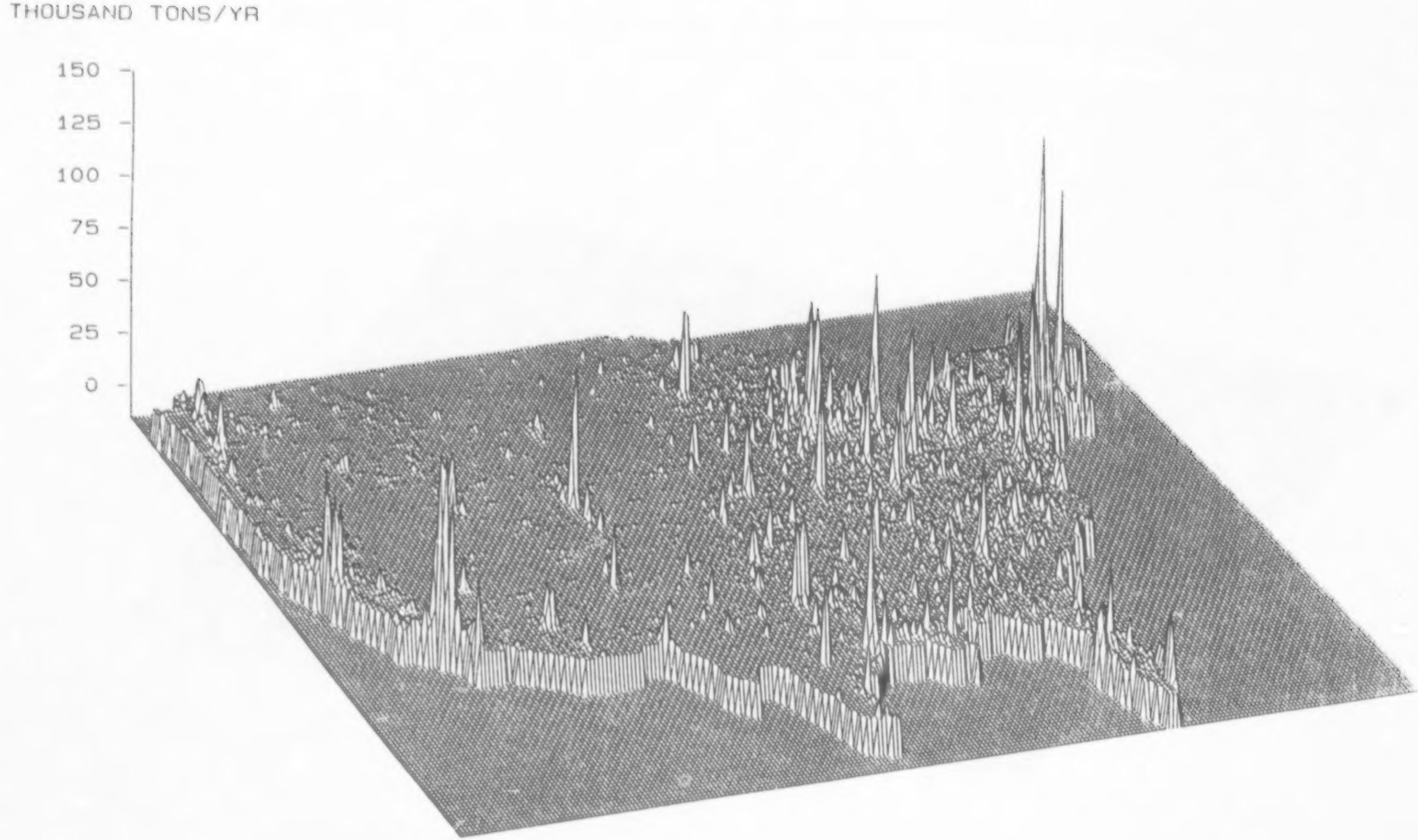


Figure 2-31. 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emission, U.S. area sources.

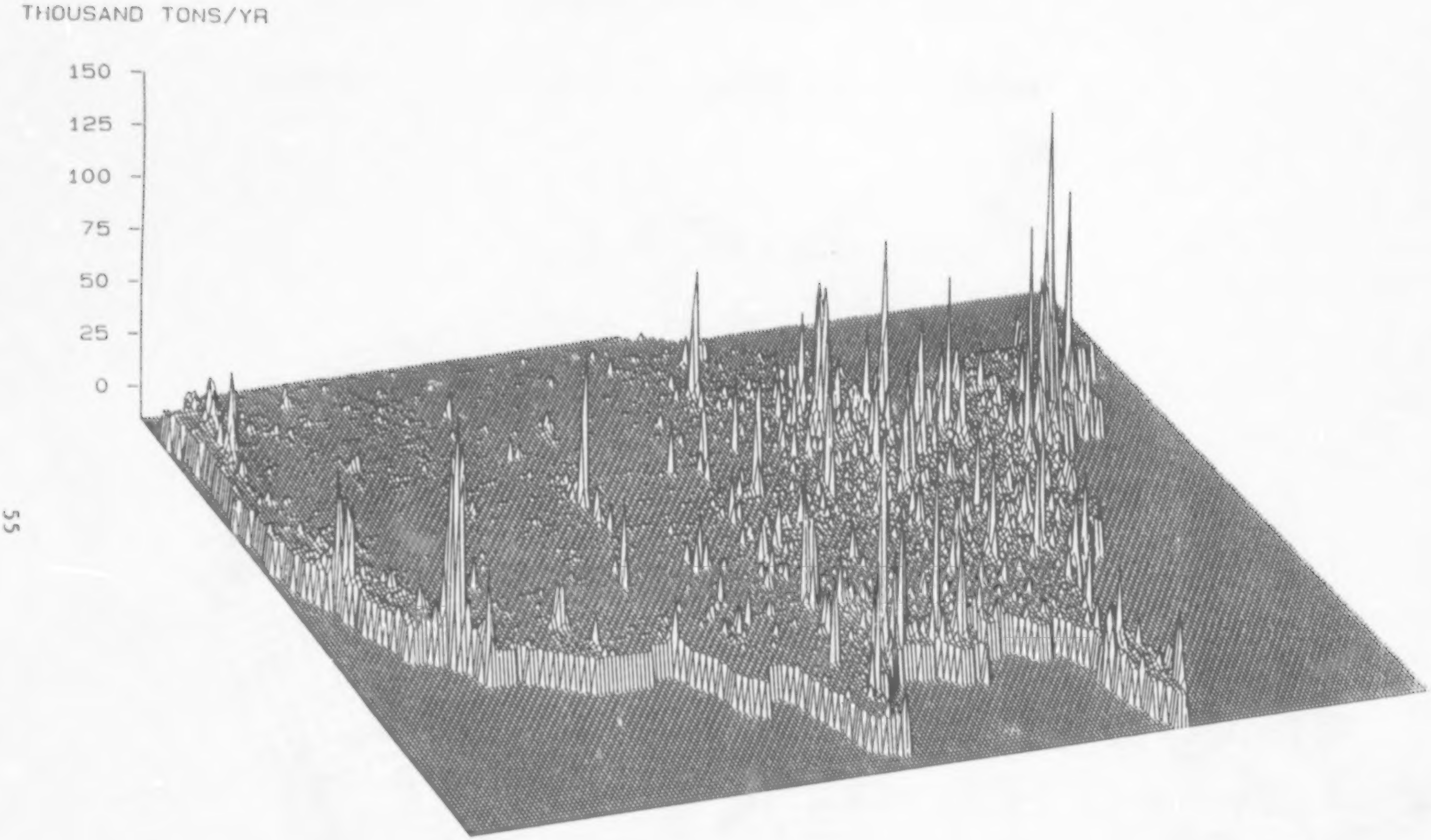


Figure 2-32. 1980 NAPAP Emissions Inventory Version 5.2 - Annual VOC emissions, U.S. point and area sources.

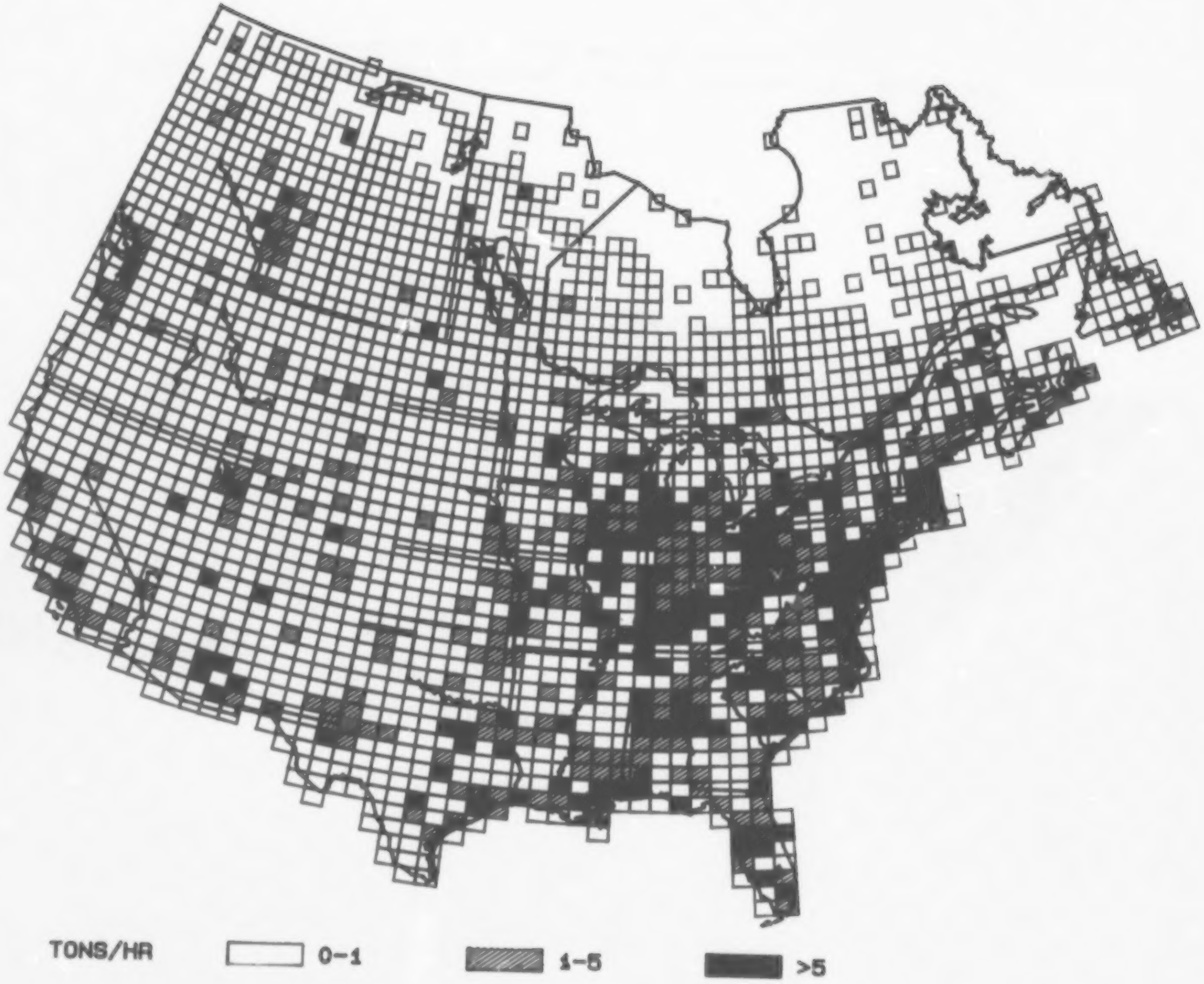

TONS/HR
0-1
1-5
>5

Figure 2-33. 1980 NAPAP Emissions Inventory Version 5.2 - $SO_2$ emissions for a typical summer weekday at 1700 GMT.

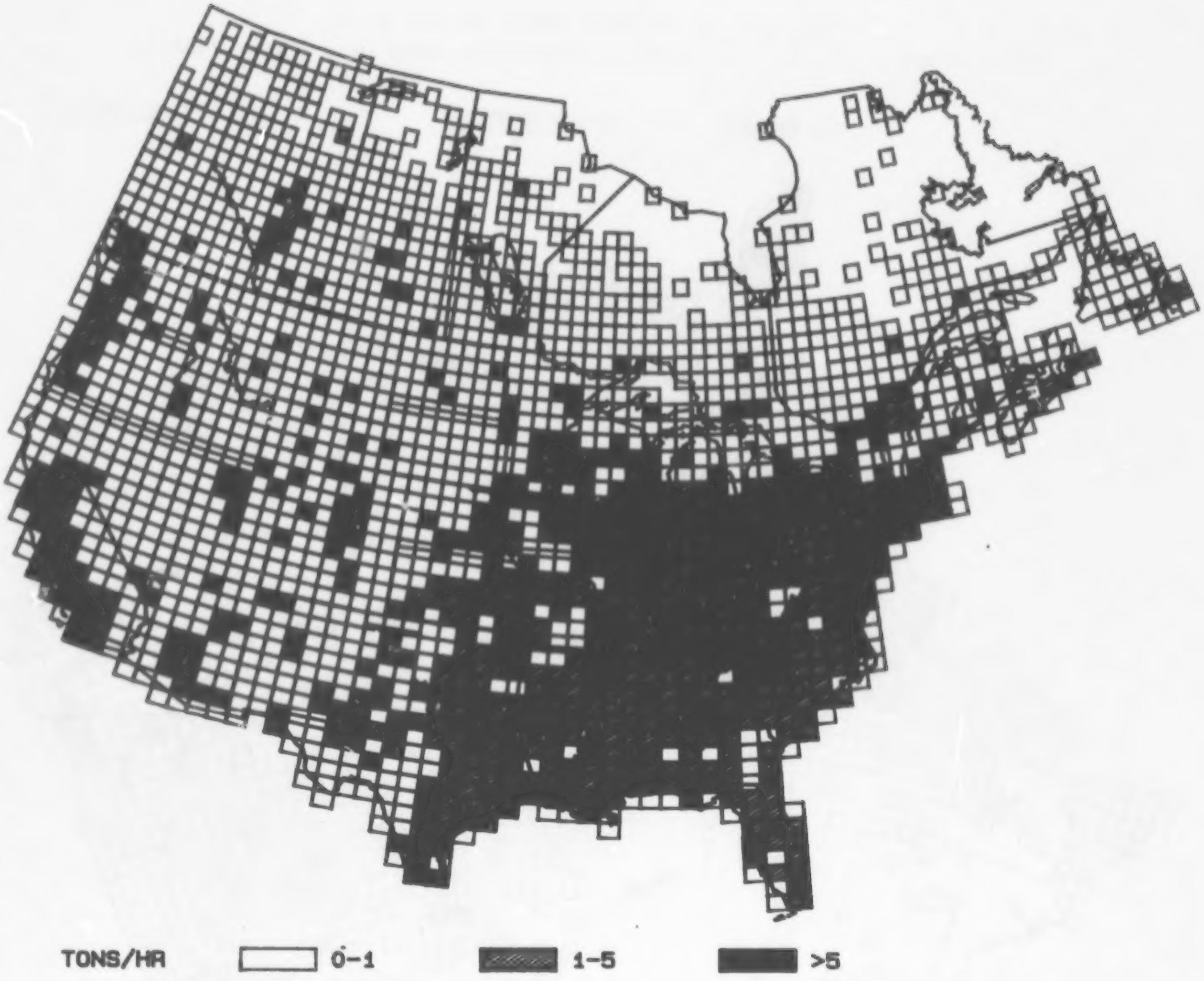

TONS/HR
0-1
1-5
>5

Figure 2-34. 1980 NAPAP Emissions Inventory Version 5.2 - $NO_x$ emissions for a typical summer weekday at 1700 GMT.

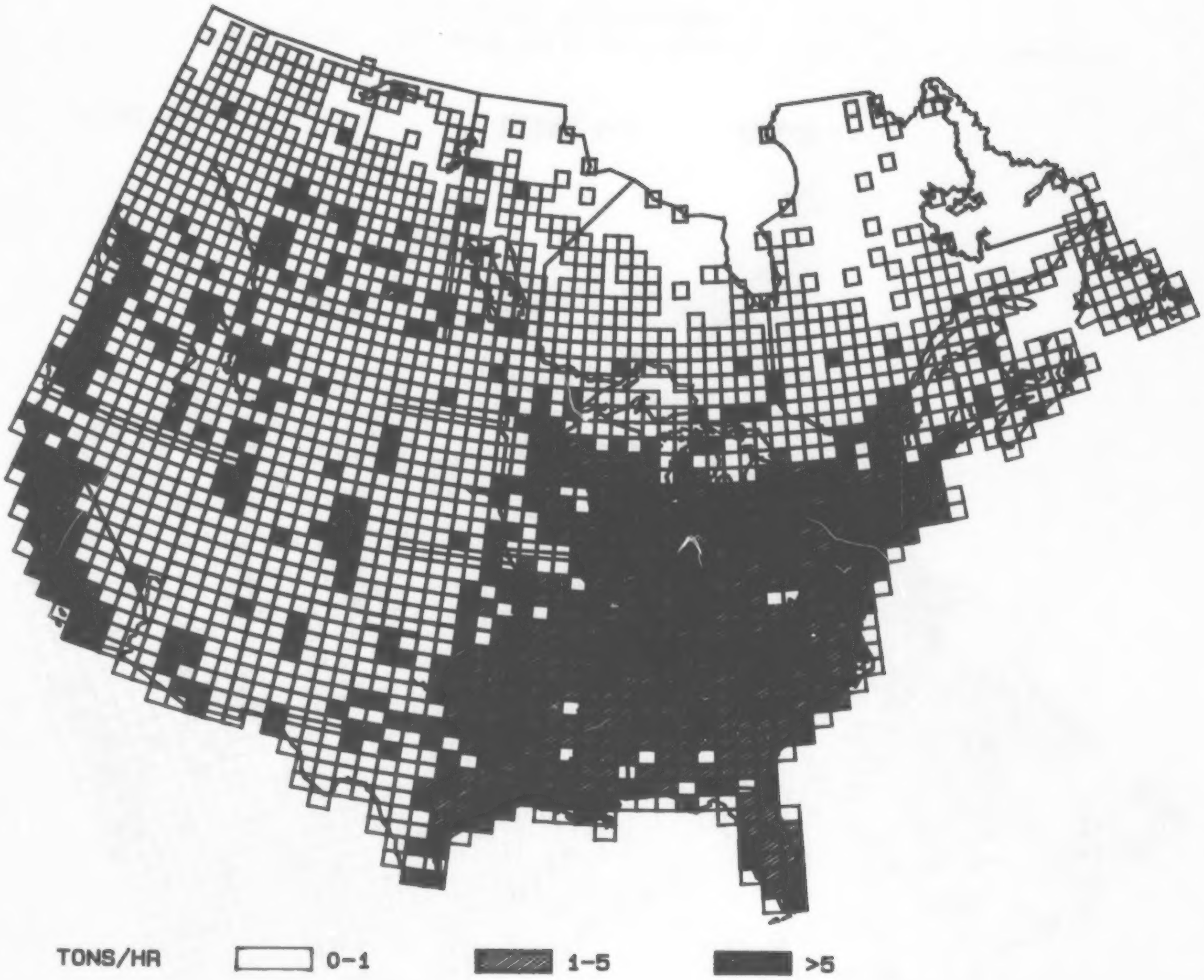

TONS/HR
0-1
1-5
>5

Figure 2-35. 1980 NAPAP Emissions Inventory Version 5.2 - VOC emissions for a typical summer weekday at 1700 GMT.

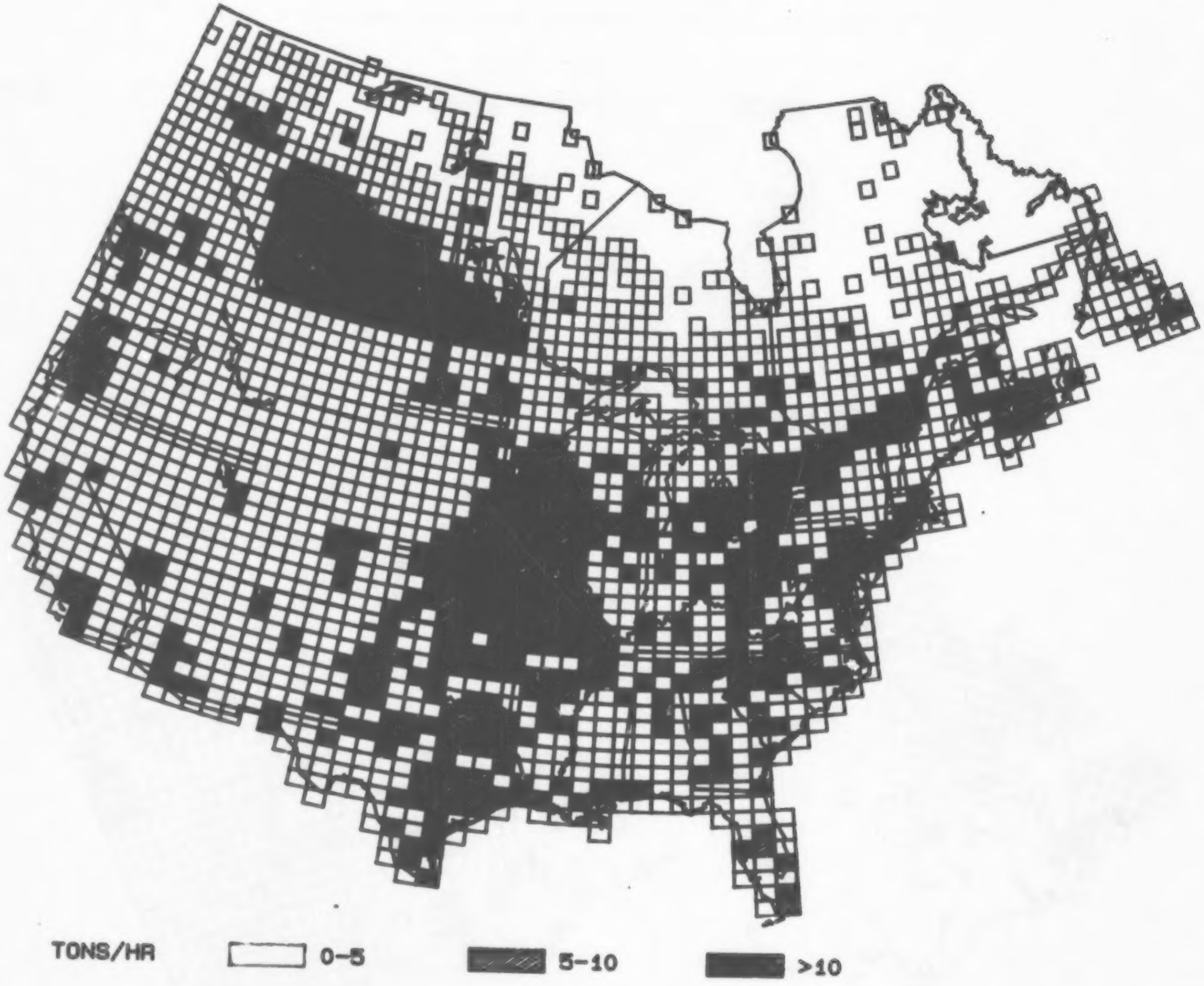

TONS/HR
0-5
5-10
>10

Figure 2-36. 1980 NAPAP Emissions Inventory Version 5.2 - TSP emissions for a typical summer weekday at 1700 GMT.

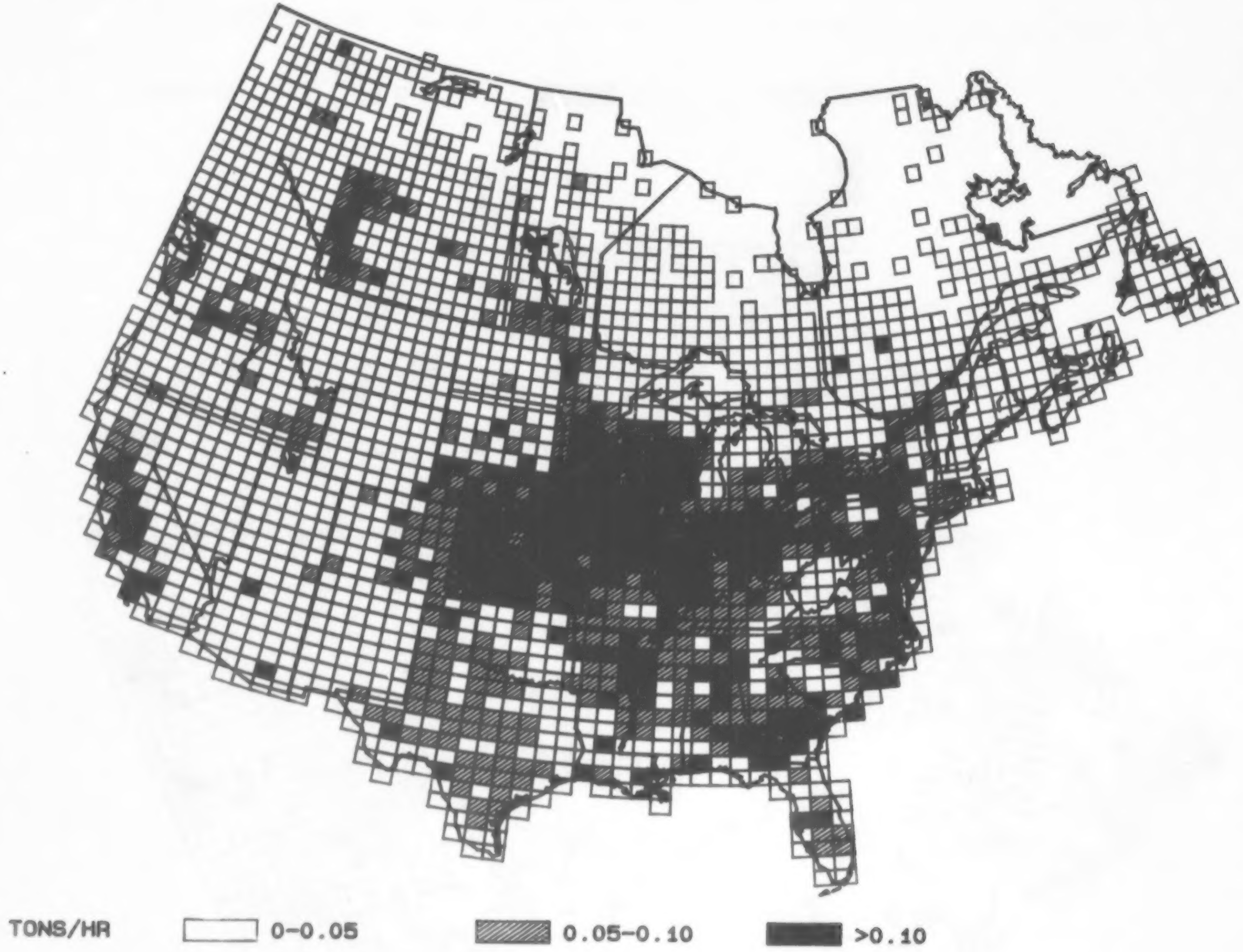

TONS/HR
0-0.05
0.05-0.10
>0.10

Figure 2-37. 1980 NAPAP Emissions Inventory Version 5.2 - $NH_3$ emissions for a typical summer weekday at 1700 GMT.

# SECTION 3

# CREATION AND QUALITY ASSURANCE OF THE 1980 NAPAP EMISSIONS INVENTORY

The primary goal of the 1980 NAPAP Emissions Inventory development effort is to provide an emissions data base adequate for acid deposition research and modeling. The basic requirements of the emissions inventory include a comprehensive data base of anthropogenic emissions data representing a common year, 1980; coverage of all pollutants believed to be important in acid deposition processes; detailed information on all point and area sources; accurate accounting of all emissions sources; and a high level of quality assurance.

Several versions of the 1980 NAPAP Emissions Inventory have been developed with each new version representing enhancements over the previous version. This section discusses the evolution of the 1980 NAPAP Emissions Inventory in both its annual and fully resolved forms, highlighting improvements made from version to version and describing the quality assurance activities that were undertaken.

## NAPAP EMISSIONS INVENTORY DEVELOPMENT APPROACH

Several constraints to inventory development existed at the outset of the NAPAP program. Limited funding was available for the initial year of the program and future resource commitments were uncertain. Inventory data were needed for preliminary analyses in a relatively short time frame, yet the final set of data needs had not been fully defined. As a result, the approach adopted for the inventory was to start with the best data base available at the time and to supplement and improve the initial inventory as time and resources permitted.

The inventory judged to be best suited for the 1980 NAPAP Annual Emissions Inventory was the 1980 "snapshot" inventory of the National Emissions Data System (NEDS), maintained by EPA's National Air Data Branch (NADB). NEDS, selected as the logical starting point for the NAPAP development effort, includes: comprehensive coverage of the contiguous United States, data at the emission point level for point sources, county-level area source data for each area source category, and annual emissions estimates for five criteria pollutants (TSP, CO, $SO_2$, $NO_x$, and VOC).

Although NEDS represented the most logical starting point for development of the 1980 NAPAP Annual Emissions Inventory, NEDS has several data processing limitations which precluded its use in NAPAP; its primary limitation is its inability to handle more than the five criteria pollutants. Although at the outset of the NAPAP effort all of the requirements of the emissions inventory were not fully defined, it was known that data for additional pollutants would be desired. It was also known that modeling applications of the data would require further temporal, spatial, and species resolution. It was determined that the Emissions Inventory System (EIS) represented the most logical data handling system for the intended application. EIS has the capability to carry the number of pollutants desired, does not present the data processing limitations of NEDS, and has been used in similar programs in the past, such as the Northeast Corridor Regional Modeling Project (NECRMP) (Sellars, et al., 1982). EIS is also supported on the National Computing Center's IBM mainframe and enabled use of the Regional Modeling Data Handling System (RMDHS), developed for NECRMP, in generating the preliminary version of the NAPAP Eulerian Modeling Inventory (Version 4.2).

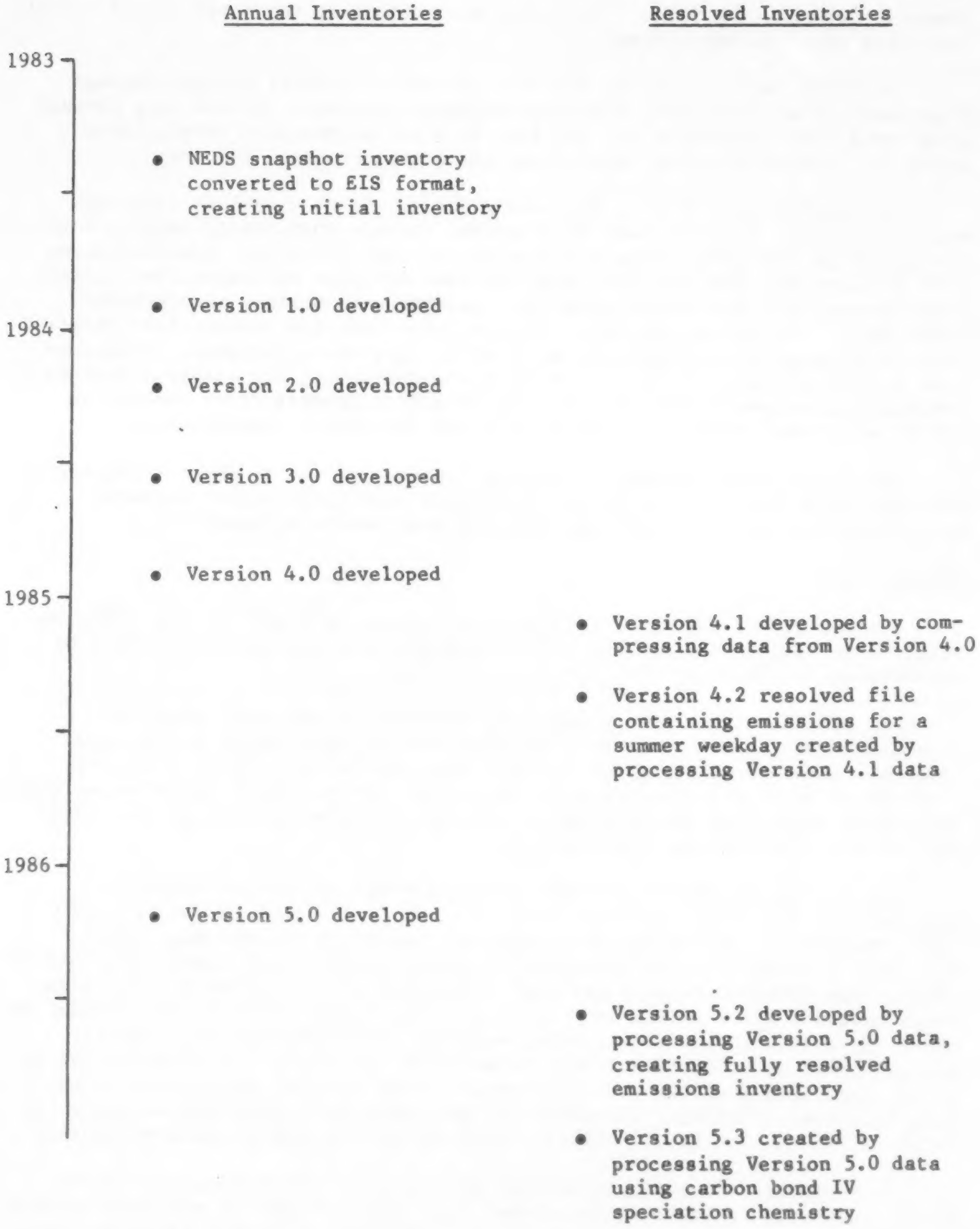
The inventory formulation process began in 1983 with the 1980 NEDS snapshot file. It was recognized that a number of improvements and additions were necessary. As previously indicated, only five pollutants were included in the inventory. Stack data and coordinates were missing or suspect in a number of cases. The emission factors used to develop emissions estimates did not reflect the latest supplement of EPA's emission factor publication, AP-42 (U.S. EPA, 1985). The development procedures used by the states to compile the individual inventories included in the 1980 NEDS snapshot were likely to be inconsistent, and the degree of quality control employed by the states was unknown. The inventory covered the contiguous United States, but emissions inventory data were also needed for Canada. Improved methodologies for developing emissions estimates for certain area source categories were available. These improvements were the focus of the 1980 NAPAP inventory development process. Thus, the remainder of the program was entirely a quality assurance effort related to improving and supplementing the initial inventory. The improvements/additions made were prioritized over time, based on available funding, NAPAP data needs, and inventory quality. This evolutionary process, culminating in the NAPAP 5.0/5.2 inventory, is summarized schematically in Figure 3-1.

## EVOLUTION AND QUALITY ASSURANCE OF THE 1980 ANNUAL NAPAP EMISSIONS INVENTORY

### Version 1.0

The first version of the NAPAP Emissions Inventory was prepared in mid-1983 and represented a number of enhancements to the NEDS snapshot file. Using a program developed by EPA's Atmospheric Sciences Research Laboratory (ASRL), missing or suspect Universal Transverse Mercator (UTM) coordinates were identified. Sources with missing UTMs, or those falling outside of county boundaries, were updated to reflect the centroid of the county.

NEDS data from previous or later versions than the 1980 snapshot file were investigated. It was determined that for 12 states, data from other versions of NEDS were more representative of calendar year 1980 than those



Annual Inventories

- NEDS snapshot inventory converted to EIS format, creating initial inventory
- Version 1.0 developed
- Version 2.0 developed
- Version 3.0 developed
- Version 4.0 developed
- Version 5.0 developed

Resolved Inventories

- Version 4.1 developed by compressing data from Version 4.0
- Version 4.2 resolved file containing emissions for a summer weekday created by processing Version 4.1 data
- Version 5.2 developed by processing Version 5.0 data, creating fully resolved emissions inventory
- Version 5.3 created by processing Version 5.0 data using carbon bond IV speciation chemistry

Figure 3-1. Evolution of the 1980 NAPAP Emissions Inventory.

found in the snapshot file. These data were obtained, converted to EIS format and substituted as appropriate.

The NAPAP emission factor file was updated to reflect changes through Supplement 14 of AP-42 (the NEDS data reflected emission factors only through Supplement 13). Emissions for the five NEDS pollutants were recalculated using the updated emission factors and the EIS maintenance routine.

The significance of $SO_x$, $NO_x$, and other pollutant emissions from the electric utility industry made it necessary to have consistent, quality data for utilities for 1980. Data from the Pechan Unit Inventory, compiled using 1980 utility data from the DOE, were obtained and used to update the initial NAPAP inventory. Individual units were matched with boilers in the NAPAP inventory to the extent possible. Updates were made for source classification code, fuel quantity and quality, and control type and efficiency. Emissions were calculated using these updated data and the latest EPA emission factors previously discussed. Monthly fuel use data from Federal Power Commission (FPC) Form 4 were used to determine seasonal throughput percentages.

One of the most significant uses of Version 1.0 was to support Lagrangian modeling being conducted by ASRL. To support this application, seasonal percentage factors were developed for each area source category.

### Version 2.0

Version 2.0 of the NAPAP Emissions Inventory, released in late 1983, was utilized by ASRL to support Lagrangian modeling and represented a number of enhancements of Version 1.0.

$SO_x$ emissions from copper smelters contained in the Work Group 3B inventory (1982) were believed to be more reliable than those in the NAPAP inventory since the WG3B effort involved procurement of 1980 data directly from the 15 significant smelters in the United States. Data on emissions were updated to agree with the WG3B data; updates were also made to process rates and control efficiencies when possible.

Because the Northeast Corridor Regional Modeling Project (NECRMP) (Sellars, et al., 1982) entailed collection of state supplied data for 1980 with a high level of quality assurance with regard to VOC and $NO_x$, these data were considered to be of generally higher quality than those contained in NAPAP. The NECRMP data were reviewed for potential incorporation into NAPAP. Since reliable utility data had previously been substituted, it was decided to limit the review to nonutility point sources. Major VOC and $NO_x$ emitters were compared and NECRMP data were substituted for all but 30 plants. The 30 plants not changed either reflected more current data or data judged to be more reliable. Following substitution, emissions were recalculated using the NAPAP (AP-42 Supplement 14) emission factors and the EIS maintenance routine.

In reviewing the electric utility updates made for Version 1.0 of the NAPAP inventory, it was discovered that some transactions had not been run and that errors were made in a few cases. Transactions to correct these problems were generated and used to update the NAPAP file.

## Version 3.0

A number of additional refinements were made in Version 3.0, released in mid-1984 and extensively documented in a report published by EPA in December 1984 (Toothman, 1984).

Fuel combustion in stationary sources is responsible for over 80 percent of total $SO_x$ emissions and over half of the $NO_x$ emissions. Because of the significance of fuel combustion, fuel data by type, consuming sector, and state were summarized from Version 2.0 and compared to data taken from the 1980 State Energy Data Report published by the DOE. For fuel types and consuming sectors that exhibited large differences (factor of two or more), reports were generated from the point source inventory by state and reviewed in an attempt to identify obvious errors in units (gallons versus thousand gallons, thousand barrels versus thousand gallons, etc.) or inconsistencies in fuel type. Update transactions for fuel quantity and source classification code (identifies fuel type) were generated in these cases, and the point source inventory was updated.

Additional work was performed to more completely match combustion units in the Pechan Unit Inventory with boilers in the NAPAP inventory. As a result, updates for several plants and/or boilers not previously matched were generated and made. During this process, some problems with previous updates were discovered and corrected. As before, the updates included source classification code (SCC), fuel quantity and quality, and control type and efficiency.

In addition to the Unit Inventory, Pechan and Associates also compiled a plant-level inventory based on 1980 DOE data. Plant-level emissions of sulfur oxides were calculated by Pechan using a different procedure than applying EPA emission factors. In order to be consistent with data in the Pechan inventories, plant-level sulfur oxides emissions in Version 2.0 were updated to match those in the Pechan plant inventory. In general, point-level emissions in Version 2.0 were normalized as necessary to obtain the appropriate plant-level emissions.

A review of the area source emissions data revealed that 15 counties which fall within more than one Air Quality Control Region (AQCR) were not properly converted from NEDS to EIS. The county data were re-combined such that only one AQCR was reported and the area source data were replaced in Version 3.0.

## Version 4.0

Version 4.0 was released in late 1984 and reflected a number of enhancements to Version 3.0, primarily related to generation of an Eulerian modeling emissions inventory. The preliminary Eulerian modeling emissions inventory reflected further temporal, spatial, and species allocation and was numbered Version 4.2; it is discussed in more detail later in this section.

To support testing of the Eulerian Regional Acid Deposition Model (RADM), two additional pollutants, ammonia and primary sulfate, were required. Uncontrolled emission factors were developed for these two pollutants under NAPAP direction; this work is detailed in Section 4. Information from the emission factor reports was used to develop removal efficiencies for a number of control devices. Assumed control efficiencies for ammonia and sulfate are provided in Appendix B.

The sulfate emission factors and assumed control efficiencies were coded along with operating data in the inventory to update the NAPAP EIS master file and generate sulfate emissions estimates. For cases in which more than one control device existed, credit was given only for the most effective device. Plants with the greatest sulfate emissions were reviewed to identify any problems with data used in the calculations and adjustments were made as necessary. A similar process was undertaken for ammonia, with one exception: for sulfate, point source emission factors were used for area source categories where appropriate; point and area sources of ammonia were, however, not as interchangeable. One significant area source of ammonia is manure application. State level ammonia estimates for manure application were allocated to counties on the basis of farm acreage.

The procedure used to add sulfate and ammonia emissions to the inventory resulted in the addition of emission estimates for other pollutants in certain cases. Some SCCs had emission factors in the NAPAP emission factor file for a given pollutant but did not have emission estimates in the inventory. The omitted pollutant was added and an emission estimate generated based on the emission factor in the emission factor file and on the operating rate and other data in the inventory.

Another enhancement of Version 4.0 entailed a review of UTM coordinates for sources added as a result of the Version 2.0 and 3.0 efforts. It was determined that a number of sources added to the NAPAP Emissions Inventory as a result of these efforts had missing or invalid location coordinates. In these instances, county centroid latitude and longitude data were added and UTM coordinates calculated.

It was discovered that the emission factor data supplied by NADB and used in the NEDS contained roundoff errors, e.g., 24.99 instead of 25.0. NADB supplied a substitute emission factor file to correct the earlier data used in NAPAP. An updated NAPAP emission factor file was created and used to revise the emission estimates.

### Version 5.0

Version 5.0 of the NAPAP Emissions Inventory was generated to support applications of the RADM and to support NAPAP assessment activities. As Version 5.0 represents the final version of the 1980 Annual Inventory, a number of additions and refinements were made to improve the quality of the inventory.

Canadian Data--

The RADM study area includes Canada, north to 60 degrees latitude. Environment Canada provided 1980 data for both point and area sources of particulates, sulfur dioxide, nitrogen oxides, total hydrocarbons, carbon monoxide, sulfate, ammonia, and four classes of alkaline particulates: calcium, magnesium, potassium, and sodium. These data were not in EIS format, and did not contain information on plant name, UTM coordinates, SCC, ash/sulfur flags, control equipment code/efficiencies, emission estimation method, annual throughput, seasonal throughput percentages, operating schedule, points sharing common stacks, boiler capacity, maximum design rate, and fuel heat content.

The Canadian data were converted into EIS format. This required revising province, SIC, and some pollutant SAROAD codes to be consistent with the United States data. Area source categories had to be renumbered, and units had to be converted to be consistent with EIS. To enable matching of temporal, spatial, and pollutant species allocation factors (described in Section 6), SCCs had to be manually assigned based on source descriptions.

Although the area source categories used in the Canadian inventory were not consistent with those in the United States inventory, they were left intact. A review of the converted inventory was conducted to ensure agreement with the original emissions data.

Utility Data--

The importance of the utility sector to the NAPAP emissions inventory was previously discussed. The utility data used to update earlier versions of the inventory did not reflect EPA emission factors and procedures for classifying fuels. In addition, better data concerning the distribution of fuels to combustion units within plants for 1980 became available from DOE. It was also desirable to maintain all utility data needed for NAPAP (emissions and projections) in one file for consistency. For these reasons, NAPAP sponsored the development of the NAPAP Utility Reference File (Pechan, 1983). Section 5 of this report presents a comprehensive accounting of the development of the NURF, and details how data in the NURF were used to generate emissions estimates for the utility sector in Version 5.0 of the NAPAP Emissions Inventory.

Chloride, Fluoride, and Lead Emissions--

Estimates of emissions of chloride (HCl), fluoride (HF), and lead (Pb) were derived in a manner similar to ammonia and sulfate in the Version 4.0 inventory. NAPAP developed emission factors for HCl and HF, and coded Pb emission factors from AP-42. These factors were added to the NAPAP Emission Factor File and utilized in conjunction with operating rate data contained in the NAPAP inventory and EIS software to calculate emissions estimates for these three pollutants.

The assumed removal efficiencies for HCl and HF were determined from information in the emission factor report and are presented in Appendix B. The removal efficiencies for Pb were assumed to be equivalent to those in the inventory for particulate matter.

Improvement of VOC Area Source Categories--

The most significant contributors to VOC emissions are area and mobile sources. In creating the Version 5.0 NAPAP Emissions Inventory, improvements were made to three significant area source categories: organic solvent evaporation, residential wood combustion, and highway vehicles.

Previous versions of the NAPAP Emissions Inventory reported a large composite category for organic solvent evaporation which had to be assigned to a composite VOC profile in speciating the emissions data for RADM input. A program was written to obtain emissions data for the 18 individual categories of solvent use normally aggregated by NEDS to make up the organic solvent use category. The organic solvent evaporation category was then replaced in Version 5.0 of the inventory by the following individual categories:

- degreasing
- dry cleaning
- graphic arts
- rubber and plastics manufacture
- architectural surface coating
- auto body repair
- motor vehicle surface coating
- paper coating
- fabricated metals coating
- machinery coating
- furniture coating
- flatwood products coating
- transportation equipment coating
- electrical equipment coating
- ship building surface coating
- miscellaneous industrial surface coating
- miscellaneous industrial solvent use
- miscellaneous nonindustrial solvent use

VOC speciation profiles for many of these categories were developed for the Northeast Corridor Regional Modeling Project (Sellars, et al., 1982). To enable use of the more detailed NECRMP speciation data, the NAPAP area source emissions data for organic solvent evaporation were expanded to reflect the above subcategories.

Previous versions of the NAPAP Emissions Inventory did not properly reflect the quantity of wood burned in the residential sector, nor did it accurately reflect the proportion of wood burned in wood stoves versus fireplaces in 1980. In addition, earlier versions of the NAPAP Emission Factor File did not reflect recent test data which indicate VOC emissions from wood burning are considerably higher than previously thought. State-level wood consumption estimates were obtained from DOE, adjusted to agree with more recent regional data for 1980, and allocated to counties on the basis of wood burning households from the 1980 Census. Consumption data for each county were adjusted to reflect the fact that the emission factors for wood combustion reflect oven-dried equivalent rates, while the fuel use data reflect undried wood. The revised emission factors for VOC were weighted on the basis of the nationwide proportion of wood stove versus fireplace wood combustion to obtain a single emission factor from which emission estimates were developed.

Emissions data for highway vehicles in previous versions of the NAPAP Emissions Inventory were based on the MOBILE2 emissions model. To support Version 5.0, the MOBILE3 emissions model was incorporated into the NEDS system. Revised highway vehicle emission factors for each U.S. county were generated for hydrocarbons, $NO_x$, and CO and incorporated into the NAPAP Emission Factor File. Using EIS software, revised emissions estimates for all highway vehicle categories were calculated. It should be noted that nonmethane emission factors were generated using MOBILE2 (i.e. VOC), while MOBILE3 calculated emission factors are for total hydrocarbons.

Systematic Quality Assurance Checks--

Previous quality assurance (QA) efforts focused on the expansion of the NAPAP Emissions Inventory to reflect the needs of the RADM or substitution of certain emissions data with those judged to be of higher quality. The Version 5.0 data base was subjected to a detailed systematic quality check. Specific checks applied to the annual data base are described in the following paragraphs.

Ash and Sulfur Flags and Percents--Calculation of $SO_2$ and TSP emissions for certain SCCs requires knowledge of the sulfur and/or ash content of the fuel used. If any of these values are missing, emissions cannot be properly calculated. All SCCs whose emissions calculations are dependent on ash and/or sulfur percents were identified. Records in the NAPAP Emissions Inventory with those SCCs were examined; those records that were missing the needed data were identified. Similar processes at the same plant were first examined. If sulfur and/or ash percentages were available on those records, the same values were substituted for the missing values. When this approach could not be used, default ash and/or sulfur percentages (see Appendix B) were used. This procedure was also applied to ash and/or sulfur contents that appeared to be unreasonably high or low.

Estimation Methods--In cases where the estimation method is 0 or blank, NEDS calculates emissions using data in the inventory and the appropriate emission factor from the emission factor file. EIS does not calculate emissions in these cases. Therefore, all estimation methods of zero and blank were identified and changed to 3 so that EIS would calculate emissions in the same manner as NEDS. Estimation method 6 or 7 indicates that the emission point has not yet begun to operate or has ceased operations. Many times, however, these emission points had emissions in the NAPAP inventory. Though NEDS recognizes that such points should not have emissions and does not report emissions for them, EIS reports the emissions just as for any other estimation method. To correct this, all emission points with estimation method 6 or 7 for one or more pollutants were deleted from the inventory.

Incorrect SCCs--A number of emission records appearing in the NAPAP Emissions Inventory had SCCs that are not considered valid by NADB (e.g., 00000000, 19999999, 29999999, and 39999999). In cases where an SCC had a zero operating rate and occurred at an emission point with multiple SCCs, the incorrect SCC was deleted. In all other cases, data in the inventory were reviewed, and manual updates were generated where possible to change the incorrect SCC. In addition, the data identified by Pechan as nonutility but given a utility SCC were reviewed and manually updated to accurately define the type of source.

Asterisks in Data Fields--EIS allows an asterisk in the first space of certain data fields which instructs the system to "blank out" the field when the data are converted back into NEDS format. Because the NAPAP Emissions Inventory data are never reconverted into NEDS, the asterisks remained, creating data processing problems for a number of inventory users. To eliminate this problem, fields with asterisks were blanked out using the EIS to NEDS program.

Zero or Blank Emissions Rates--A number of emission sources were detected that had blank or zero emission rates for certain pollutants, and based on emissions of other pollutants, were suspected to be incorrect. In instances in which the estimation method was 3 (EIS calculates automatically), it was found that a data item crucial to the emissions calculation was missing or zero. To correct the error, where the missing data item was such that a default value could be utilized (e.g., sulfur or ash content), emissions were recalculated with the default value. In many instances, however, the affected data item involved operating rate information, or the SCC did not have an emission factor, despite the use of estimation method 3. Nothing could realistically be done in these instances within the time and budget constraints of the program, so they were noted but not addressed.

Missing or Anomalous Stack Data--Stack data are important because they are required by the RADM. The NAPAP Emissions Inventory was screened to identify sources with missing stack data. Average values based on SCC were substituted in these instances. For sources with multiple SCCs, the primary SCC was utilized in selecting default stack data.

Limit checks were applied to all stack data in the NAPAP Emissions Inventory, as follows:

- Stack height greater than 900 feet
- Utility boiler stack heights less than 100 feet
- Stack diameter greater than 30 feet
- Stack gas temperatures for scrubber stacks greater than 250 degrees
- Stack gas temperatures less than 250 degrees for nonscrubber stacks
- Stack flow rate greater than temperature (degrees R) x capacity for fuel combustion sources.

Stacks exceeding the above limits were identified and reviewed. Suspected problems were resolved based on engineering judgment. In addition all stacks with exit temperatures less than 77°F were changed to 77. Stack gas flow rates were also screened. Those found to exceed the product of capacity and temperature were set to a default flow rate equal to 1/2 the product of capacity and temperature:

$$\text{ACFM} = \frac{(250\ \text{SCFM/MMBtu/hr})\ (\text{Capacity in MMBtu/hr})\ (\text{stack temperature in }^\circ\text{R})}{\text{Ambient temperature in }^\circ\text{R}}$$

$$= \frac{250\ (\text{capacity})\ (\text{temperature})}{520} \cong 1/2\ (\text{capacity})\ (\text{temperature})$$

As previously indicated, the utility data in Version 4.0 were completely replaced with data generated by Pechan. In creating the new utility data, Pechan renumbered the emission points at a plant. Emission points were matched to those in Version 4.0 where possible but many of the emission points were not matched and several new emission points were created. For the unmatched or new emission points, no stack data were placed in NURF and therefore none were entered into the NAPAP inventory. These emission points were treated like other emission points in the inventory in that average values were substituted.

Operating Rates--Operating rate data were screened for consistency with maximum hourly operating capacities and operating hours. Sources with inconsistent operating rate data were identified. In some instances it was determined that maximum design capacity data were in error; these data were corrected. However, only a few annual operating rates could be corrected, and in most cases, it was not possible to determine whether the annual rate or the maximum rate was in error.

Control Equipment Efficiency--The data were screened to identify emission points which reported control types, but not efficiencies. In these instances, default efficiencies were substituted (see Appendix B). If more than one device was found, the efficiency corresponding to the most efficient device was entered. In instances in which the control efficiency was present, but the control equipment code was missing, no action was taken.

Non-Computer Calculated Emissions--Sources whose emissions are based on an estimation method other than 3 (e.g., stack test, material balance) were identified. Emissions were estimated using the NAPAP Emission Factor File and operating data reported for the source. In cases in which the calculated emissions differed from the reported emissions by more than a factor of three, the estimation method was changed to 3 so that the computer calculated emissions would be substituted.

Two exceptions to the above procedure should be noted. The emissions estimation method for $SO_x$ emissions from copper smelters was changed to 5 (indicating state-supplied data) when the data were updated with Work Group 3B data, to prevent EIS from changing the estimates automatically. The same procedure was followed in NECRMP, the source of considerable VOC and $NO_x$ data in NAPAP. The copper smelter data were left unchanged in Version 5.0. However, since the NECRMP data had been developed prior to the release of Supplement 14 of AP-42, the following procedure was undertaken. $NO_x$ and VOC emissions were computer-calculated using Supplement 13 emission factors and compared to the NECRMP values. If the two values matched, emissions were recalculated to reflect supplement 14, using estimation method 3. Sources whose emissions did not match the computer calculated values were left unchanged.

Operating Data--Operating data consist of seasonal throughput and hours/day, days/week, and weeks/year of operation. These data are needed for major point sources to obtain the temporal emissions detail required for Eulerian modeling. Seasonal throughput percentages that did not sum to 100 were identified and reviewed. Additional updates were made manually based on the type of source and engineering judgement.

Fuel Heat Content--For fuel-burning sources, missing heat values or values falling outside an appropriate range were replaced with default values as specified in Appendix B.

Emission Factor Confidence Levels--

The procedure adopted to develop uncertainty estimates for emissions in the 1980 NAPAP inventory required the compilation of confidence levels for the factors in the emission factor file. It was decided to assign confidence levels on the basis of the letter ratings included in AP-42 which are indicative of the amount and quality of emissions test data used to develop each factor. The confidence levels were assigned to the letter ratings as follows: A: ±10%, B: ± 25%, C: ±50%, D: ±75%, and E: ±100%. The confidence ratings (1 through 5 correspond to A through E) were added to the point and area source emission factor files in the appropriate fields. Ratings could not be found in AP-42 for several factors in the emission factor file. These cases were discussed with NADB personnel and engineering judgement was used to assign a confidence level. In cases where a zero emission factor occurred, a confidence rating of 1 was assigned.

SCC-Level Emissions--

The program which speciates total hydrocarbons, $NO_x$, and TSP from the NAPAP inventory into the components required for the Eulerian model is based upon the SCC. Emissions by SCC were thus needed for the program. The NAPAP inventory has the capability to calculate and store SCC-level emissions. Emissions are inserted for the SCC when calculations are based on factors from the emission factor file. In other cases, however, SCC-level emissions are not available. A computer program was developed to handle these cases using the algorithms included in NEDS for reporting SCC-level emissions. When only one SCC existed at an emission point, the point-level emissions were assigned to the SCC. The NEDS algorithms could not handle situations where all process rates or emission factors were zero or blank for the emission point. Point-level emissions were assigned in such situations equally to each SCC that occurred at the emission point.

York County--

During the creation of Version 5.0 of the 1980 NAPAP inventory, it was discovered that York County, Pennsylvania, did not exist in earlier versions of the area source inventory or in the original NEDS data supplied by NADB. Area source activity data for York County were obtained from NADB and, together with the factors in the emission factor file (including MOBILE3 factors for highway vehicles), were used to create a separate inventory for York County in EIS/AS format. The inventory was supplied to Alliance for developing Eulerian model input and later merged with the area source inventory for other counties in the U.S.

Correction of Canadian Emissions and Stack Parameters--

Communication with Environment Canada uncovered a problem with reported ammonia emissions from Canadian sources. A tape was provided with new emissions values which were substituted into the inventory. After updating, ammonia emissions were reevaluated and determined to be correct.

The Canadians revised their estimate of total hydrocarbon emissions from fuel marketing and landfills based on recent surveys. Canadian area source THC emissions were updated accordingly.

Environment Canada also provided a complete point source printout containing additions and corrections to previous stack parameter data. The Canadian point source file was updated as follows:

1. Additions and corrections were made as reported.

2. Average stack parameter values, based on SCC, were added to point sources missing some, but not all, stack data. SCC averages were also added to sources missing all stack data if $SO_2$ emissions from the point source were 100 or more tons/year.

3. The remaining points missing all stack parameters were given nominal plume heights to facilitate modeling applications.

Ammonia Emission Factor Updates--

A review of ammonia emissions estimates from the NAPAP ammonia emission factor report revealed that reported ammonia emissions in the NAPAP inventory were much higher than expected. A revised version of the ammonia emission factor report was obtained, and a systematic check of point and area source emission factors was undertaken. New factors were inserted where appropriate and emissions recalculated, resulting in a much better agreement between estimated and reported values.

VOC and THC Emissions--

Previous versions of the 1980 NAPAP inventory contain a mixture of hydrocarbon types including nonmethane VOCs, nonreactive VOCs, and total VOCs. In cases where the NAPAP emission factor file was used to calculate emissions, the emissions are generally nonmethane or nonreactive, because the NEDS emission factor file (on which the NAPAP file was based) contains nonmethane or nonreactive "VOC" factors to the extent possible. However, the program to speciate hydrocarbons for Version 5.2 assumes that total hydrocarbons are being provided, and in the case of non-computer-calculated emissions (estimation method ≠ 3), VOC and THC were set equal to each other. In addition, the AP-42 emission factors for hydrocarbons do not account for aldehydes because the flame ionization technique used to determine the emission factor does not detect aldehydes. Though the speciation program accounts for this and adds a mass for aldehydes to the appropriate Version 5.2 photochemical class, this mass was not being accounted for in the 5.0 inventory.

Total hydrocarbon emission factors were added to the inventory using information provided by NADB and AP-42. These factors were evaluated for consistency and judged to be of higher quality than those for VOC. At the recommendation of ASRL, the speciation program was run on the 5.0 inventory and the resulting aldehyde mass was added to the Version 5.0 total hydrocarbon value to yield adjusted THC. VOC emissions were then calculated by subtracting those species considered photochemically nonreactive (essentially methane and ethane) from the revised hydrocarbon emissions.

The final Version 5.0 emission inventory was subjected to a series of QA checks. Tables 3-1 through 3-4 summarize the QA checks and present the total number of records flagged for review. Because the NAPAP inventory is an emissions inventory rather than a compliance data base, no QA was performed on allowable emissions and compliance data that were present in NEDS.

A summary of emissions for Version 1.0 through 5.0 of the 1980 NAPAP inventory is shown in Table 3-5. The emission changes on a nationwide basis are minor, with the exception of ammonia, which has been reduced greatly as a result of the emission factor updates discussed earlier. Sulfur oxides emissions have generally decreased while VOC emissions have increased slightly. Nitrogen oxide emissions increased from Versions 1.0 to 4.0, but decreased in Version 5.0. Emission changes at the state and especially at the plant and emission point level are more dramatic from Versions 1.0 to 5.0. The changes reflect the greater degree of quality in each succeeding version of the 1980 NAPAP inventory.

## TABLE 3-1. EMISSIONS TOTALS FOR 1980 AND NON-1980 SOURCES IN 1980 NAPAP INVENTORY (VERSION 5.0)

| | COMBUSTION SOURCES[1] | | | | OTHER SOURCES[2] | | |
|---|---|---|---|---|---|---|---|
| CHECK DESCRIPTION | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | POINT | AREA | TOTAL |
| TOTAL SO2 EMISSIONS (TONS/YEAR) | 17,478,705 | 3,480,756 | 560,696 | 460,109 | 3,766,301 | 1,207,568 | 26,954,135 |
| NON-1980 SO2 EMISSIONS | 0 | 1,912,003 | 124,386 | 151,013 | 2,608,596 | 0 | 4,796,018 |
| PCT OF EMISSIONS FROM 1980 | 100.0% | 45.1% | 77.8% | 67.2% | 30.7% | 100.0% | 82.2% |
| PCT OF EMISSIONS NOT FROM 1980 | 0.0% | 54.9% | 22.2% | 32.8% | 69.3% | 0.0% | 17.8% |
| TOTAL NOX EMISSIONS (TONS/YEAR) | 6,448,070 | 3,565,714 | 287,502 | 727,851 | 1,472,412 | 9,850,690 | 22,352,239 |
| NON-1980 NOX EMISSIONS | 0 | 1,128,913 | 63,601 | 168,070 | 1,094,111 | 0 | 2,454,695 |
| PCT OF EMISSIONS FROM 1980 | 100.0% | 68.3% | 77.9% | 76.9% | 25.7% | 100.0% | 89.0% |
| PCT OF EMISSIONS NOT FROM 1980 | 0.0% | 31.7% | 22.1% | 23.1% | 74.3% | 0.0% | 11.0% |
| TOTAL VOC EMISSIONS (TONS/YEAR) | 46,644 | 372,053 | 17,648 | 2,650,912 | 3,400,594 | 16,676,697 | 23,164,548 |
| NON-1980 VOC EMISSIONS | 0 | 286,749 | 9,289 | 104,407 | 2,725,275 | 0 | 3,125,720 |
| PCT OF EMISSIONS FROM 1980 | 100.0% | 22.9% | 47.4% | 96.1% | 19.9% | 100.0% | 86.5% |
| PCT OF EMISSIONS NOT FROM 1980 | 0.0% | 77.1% | 52.6% | 3.9% | 80.1% | 0.0% | 13.5% |
| TOTAL TSP EMISSIONS (TONS/YEAR) | 637,746 | 1,000,393 | 103,510 | 1,585,726 | 2,537,357 | 36,752,638 | 42,617,370 |
| NON-1980 TSP EMISSIONS | 0 | 766,437 | 63,114 | 75,458 | 1,975,020 | 0 | 2,880,029 |
| PCT OF EMISSIONS FROM 1980 | 100.0% | 23.4% | 39.0% | 95.2% | 22.2% | 100.0% | 93.2% |
| PCT OF EMISSIONS NOT FROM 1980 | 0.0% | 76.6% | 61.0% | 4.8% | 77.8% | 0.0% | 6.8% |
| TOTAL CO EMISSIONS (TONS/YEAR) | 309,189 | 2,520,855 | 52,551 | 9,109,898 | 6,034,925 | 81,281,519 | 99,308,937 |
| NON-1980 CO EMISSIONS | 0 | 2,007,362 | 11,471 | 365,619 | 4,702,272 | 0 | 7,086,724 |
| PCT OF EMISSIONS FROM 1980 | 100.0% | 20.4% | 78.2% | 96.0% | 22.1% | 100.0% | 92.9% |
| PCT OF EMISSIONS NOT FROM 1980 | 0.0% | 79.6% | 21.8% | 4.0% | 77.9% | 0.0% | 7.1% |

1 - Utility sources include SCCs 101xxxxx and 201xxxxx, and area source SCCs 96-98.
Industrial sources include SCCs 102xxxxx, 202xxxxx and 105001xx, and
area source SCCs 14-20.
Commercial sources include SCCs 103xxxxx, 203xxxxx and 105002xx, and
area source SCCs 7-12.
Other combustion sources include all SCCs under 300xxxxx not mentioned above,
306001xx-306002xx, 390xxxxx-391xxxxx, 40201xxx-402011xx,
5xxxxxxx-51xxxxxx, and 30500206-3050028x, and area source SCCs 1-6 and 21-26.

2 - Other sources include all point and area source SCCs not included in note (1) above.

## TABLE 3-2. PLANT LEVEL QA CHECKS OF 1980 NAPAP U.S. POINT SOURCES (VERSION 5.0)

| CHECK NUMBER AND DESCRIPTION | COMBUSTION SOURCES[1] | | | | OTHER SOURCES[2] | TOTAL FLAGGED | PERCENT FLAGGED |
|---|---|---|---|---|---|---|---|
| | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | | | |
| SAMPLE POOL | 1,364 | 2,879 | 392 | 621 | 8,423 | 13,679 | NA |
| 1: DATE OF RECORD NOT 1980 | 0 | 2,402 | 318 | 522 | 6,647 | 9,889 | 72.29 |
| 2: PLANTS FLAGGED IN CHECK 1 EMITTING > 1,000 TONS/YEAR | 0 | 6 | 0 | 3 | 14 | 23 | 0.17 |
| 3: PLANTS WITH MISSING SO2, NOX, TSP, VOC AND CO EMISSIONS | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |

1 - Utility sources include SCCs 101xxxxx and 201xxxxx
Industrial sources include SCCs 102xxxxx, 202xxxxx, 105001xx, and 390xxxxx
Commercial sources include SCCs 103xxxxx, 203xxxxx and 105002xx
Other combustion sources include all SCCs under 300xxxxx not mentioned above, 306001xx-306002xx, 40201xxx-402011xx, 5xxxxxxx-51xxxxxx, and 30500206-3050028x

2 - Other sources include all point source SCCs not included in note (1) above.

## TABLE 3-3. POINT LEVEL QA CHECKS OF 1980 NAPAP U.S. POINT SOURCES (VERSION 5.0)

| CHECK NUMBER AND DESCRIPTION | COMBUSTION SOURCES[1] | | | | OTHER PT SOURCES[2] | TOTAL FLAGGED | PERCENT FLAGGED |
|---|---|---|---|---|---|---|---|
| | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | | | |
| SAMPLE POOL | 4,472 | 7,637 | 764 | 1,591 | 20,019 | 34,483 | NA |
| 1: VELOCITY DATA MISSING AND PLUME HEIGHT 0 OR MISSING | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 2: VELOCITY PRESENT, BUT NOT BETWEEN 5 AND 130 FT/SEC | 223 | 1,027 | 155 | 232 | 2,341 | 3,978 | 11.54 |
| 3: STACK PARAMS (HT,DIA,TEMP,OR FLOW) AND PLUME HEIGHT MISSING | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 4: STACK HGT > 1000 FT. | 4 | 0 | 0 | 0 | 1 | 5 | 0.01 |
| 5: STACK DIAMETER NOT BETWEEN 0.5 AND 30 FT. | 44 | 496 | 10 | 160 | 567 | 1,277 | 3.70 |
| 6: RATIO OF STACK HGT. TO DIA. NOT BETWEEN 5 AND 60 | 326 | 765 | 42 | 353 | 1,844 | 3,330 | 9.66 |
| 7: STACK FLOW RATE IS MISSING | 0 | 84 | 5 | 19 | 1,547 | 1,655 | 4.80 |
| 8: STACK TEMPERATURE NOT BETWEEN 60 AND 2000 DEGREES F | 12 | 24 | 3 | 19 | 1,880 | 1,938 | 5.62 |
| 9: DAYS PER YEAR NOT BETWEEN 0 AND 365 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 10: SUM OF SEASONAL THRUPUTS NOT EQUAL TO 100 +/- 5% | 0 | 3 | 0 | 0 | 9 | 12 | 0.03 |
| 11: DAYS PER WEEK NOT BETWEEN 0 AND 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 12: HOURS PER DAY NOT BETWEEN 0 AND 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 13: WEEKS PER YEAR NOT BETWEEN 0 AND 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 14: EMISSIONS < 100 TONS/YEAR[3] | NA[4] | 471 | 47 | 73 | 7,139 | 7,730 | 22.42 |
| 15: UTILITIES WITH ESTIMATION METHOD OTHER THAN 3 | 0 | NA | NA | NA | NA | 0 | 0.00 |
| 16: ESTIMATION METHOD OF 0, 6, OR 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 17: CONTROL EQUIPMENT PRESENT BUT CONTROL EFFICIENCY MISSING | 0 | 0 | 0 | 0 | 2 | 2 | 0.01 |

## TABLE 3-3 (continued)

| CHECK NUMBER AND DESCRIPTION | COMBUSTION SOURCES[1] | | | | OTHER PT SOURCES[2] | TOTAL FLAGGED | PERCENT FLAGGED |
|---|---|---|---|---|---|---|---|
| | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | | | |
| SAMPLE POOL | 4,472 | 7,637 | 764 | 1,591 | 20,019 | 34,483 | NA |
| 18: ESTIMATION METHOD 3 AND EMISSIONS MISSING | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 19: ESTIMATION METHOD NOT EQUAL TO 3 AND EMISSIONS MISSING | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 20: SO2 > 25,000 TONS/YEAR | 187 | 0 | 0 | 0 | 16 | 203 | 0.59 |
| 21: TSP > 25,000 TONS/YEAR | 0 | 0 | 0 | 0 | 8 | 8 | 0.02 |
| 22: NOX > 25,000 TONS/YEAR | 14 | 0 | 0 | 0 | 2 | 16 | 0.05 |
| 23: VOC > 25,000 TONS/YEAR | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 24: CO > 25,000 TONS/YEAR | 0 | 1 | 0 | 1 | 88 | 90 | 0.26 |
| 25: SPACE HEAT % > 0 AND POINT IS NOT A COMBUSTION SOURCE | NA | NA | NA | NA | 162 | 162 | 0.47 |
| 26: SPACE HEAT % > 30 AND WINTER THRUPUT < SUMMER THRUPUT | 0 | 27 | 31 | 1 | 11 | 70 | 0.20 |

1 - Utility sources include SCCs 101xxxxx and 201xxxxx
Industrial sources include SCCs 102xxxxx, 202xxxxx, 105001xx, and 390xxxxx
Commercial sources include SCCs 103xxxxx, 203xxxxx and 105002xx
Other combustion sources include all SCCs under 300xxxxx not mentioned above,
306001xx-306002xx, 40201xxx-402011xx, 5xxxxxxx-51xxxxxx,
and 30500206-305002Rx

2 - Other sources include all point source SCCs not included in note (1) above.

3 - These point sources have been flagged because at least one point within the same plant has emissions exceeding 100 tons/year.

4 - For utility sources, the cutoff for all sources was 100 tons/year at the plant level rather than the point level.

# TABLE 3-4. SCC LEVEL QA CHECKS OF 1980 NAPAP U.S. POINT SOURCES (VERSION 5.0)

| CHECK NUMBER AND DESCRIPTION | COMBUSTION SOURCES[1] | | | | OTHER SOURCES[2] | TOTAL FLAGGED | PERCENT FLAGGED |
|---|---|---|---|---|---|---|---|
| | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | | | |
| SAMPLE POOL | 7,834 | 13,029 | 973 | 2,108 | 26,215 | 50,159 | NA |
| 1: HOURLY OPERATING RATE > MAXIMUM HOURLY OPERATING RATE | 156 | 1,270 | 108 | 268 | 3,170 | 4,972 | 9.91 |
| 2: ALL SCC-LEVEL EMISSIONS MISSING | 0 | 60 | 0 | 63 | 755 | 878 | 1.75 |
| 3: SULFUR FLAG = 'S' AND SULFUR CONTENT = 0 OR MISSING | 0 | 8 | 0 | 0 | 41 | 49 | 0.10 |
| 4: ASH CODE 'A' BUT ASH CONTENT 0 OR MISSING | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 5: THRUPUT = 0 AND SO2 OR NOX > 0 | 0 | 742 | 8 | 287 | 331 | 1,368 | 2.73 |
| 6: SO2 = 0, SULFUR CONTENT > 0, AND THRUPUT NOT EQUAL TO 0 | 0 | 404 | 8 | 9 | 24 | 445 | 0.89 |
| 7: HEATRATE = 0 AND THRUPUT > 0 OR SO2 > 0 | 0 | 320 | 6 | 164 | 6 | 496 | 0.99 |
| 8: HEATRATE = 0 AND SO2 = 0 AND THRUPUT=0 | 110[3] | 502 | 18 | 101 | 3 | 734 | 1.46 |
| 9: SO2 NOT EQUAL TO CALCULATED SO2 +/- 15% | 0 | 1,688 | 48 | 506 | 936 | 3,178 | 6.34 |
| 10: SOURCES FLAGGED IN CHECK 9 WITH ESTIMATION METHOD 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 11: SAME AS CHECK 9 NOT INCLUDING FLAGS OF CHECKS 5 AND 6 | 0 | 1,381 | 41 | 327 | 829 | 2,578 | 5.14 |
| 12: SO2 NOT EQUAL TO CALCULATED SO2 +/- 50% | 0 | 1,339 | 26 | 405 | 830 | 2,600 | 5.18 |
| 13: SO2 NOT EQUAL TO CALCULATED SO2 +/- 100% | 0 | 997 | 19 | 281 | 550 | 1,847 | 3.68 |
| 14: SO2 NOT EQUAL TO CALCULATED SO2 +/- 200% | 0 | 918 | 18 | 264 | 500 | 1,700 | 3.39 |
| 15: NOX NOT EQUAL TO CALCULATED NOX +/- 50% | 0 | 2,074 | 106 | 574 | 432 | 3,186 | 6.35 |
| 16: VOC NOT EQUAL TO CALCULATED VOC +/- 50% | 0 | 3 | 1 | 1 | 237 | 242 | 0.48 |
| 17: TSP NOT EQUAL TO CALCULATED TSP +/- 50% | 0 | 2,654 | 183 | 604 | 2,562 | 6,003 | 11.97 |

## TABLE 3-4 (continued)

| CHECK NUMBER AND DESCRIPTION | COMBUSTION SOURCES[1] | | | | OTHER SOURCES[2] | TOTAL FLAGGED | PERCENT FLAGGED |
|---|---|---|---|---|---|---|---|
| | UTILITIES | INDUSTRIAL | COMMERCIAL | OTHER | | | |
| SAMPLE POOL | 7,834 | 13,029 | 973 | 2,108 | 26,215 | 50,159 | NA |
| 18: CO NOT EQUAL TO CALCULATED CO +/- 50% | 0 | 1,944 | 148 | 429 | 390 | 2,911 | 5.80 |
| 19: POINTS NOT IN CORRECT COUNTY | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |

1 - Utility sources include SCCs 101xxxxx and 201xxxxx
Industrial sources include SCCs 102xxxxx, 202xxxxx, 105001xx, and 390xxxxx
Commercial sources include SCCs 103xxxxx, 203xxxxx and 105002xx
Other combustion sources include all SCCs under 300xxxxx not mentioned above, 306001xx-306002xx, 40201xxx-402011xx, 5xxxxxxx-51xxxxxx, and 30500206-3050028x

2 - Other sources include all point source SCCs not included in note (1) above.

3 - These utility sources have zero annual thruput due to intermittent operation throughout the year.

TABLE 3-5. SUMMARY OF TOTAL U.S. EMISSIONS FROM VERSIONS 1.0 - 5.0 OF THE 1980 NAPAP INVENTORY

| | Emissions (thousand tons per year) Version | | | | |
|---|---|---|---|---|---|
| Pollutant | 1.0 | 2.0 | 3.0 | 4.0 | 5.0[a] |
| $SO_2$ | 27,916 | 27,784 | 27,111 | 27,222 | 26,954 |
| $NO_x$ | 22,905 | 23,198 | 23,667 | 23,833 | 22,352 |
| VOC | 22,582 | 22,520 | 23,269 | 23,307 | 23,165 |
| Sulfate | -- | -- | -- | 947 | 976 |
| Ammonia | -- | -- | -- | 4,250 | 838 |
| Chloride | -- | -- | -- | -- | 527 |
| Fluoride | -- | -- | -- | -- | 115 |
| Lead | -- | -- | -- | -- | 32 |

[a] Version 5.0 totals shown do not include Canadian emissions which are as follows:

$SO_2$ - 5,109
$NO_x$ - 2,054
VOC - 2,994
Sulfate - 188
Ammonia - 210

## EVOLUTION AND QUALITY ASSURANCE OF THE 1980 RESOLVED NAPAP EMISSIONS INVENTORY

One of the primary functions of the NAPAP emissions inventory, as recognized at the project's outset, was to serve as a source of data for emissions modeling. The development of an Eulerian modeling inventory was initiated with Version 4.0. In order to create a suitable data set, it was necessary to further resolve the emissions data spatially (to 20 x 20 kilometer grids) and temporally (to the hourly level), and to resolve selected pollutants (nitrogen oxides, alkaline particulates, and total hydrocarbons) into their component species. The remainder of this section documents the development of the fully resolved inventories. A detailed discussion of allocation factor development appears in Section 6, and a more in-depth accounting of quality assurance checks applied to the 5.2 inventory can be found in Section 7.

### Versions 4.1 and 4.2

Version 4.0 of the 1980 NAPAP inventory could not be input directly into the data processing system used to create Eulerian model input. The point source file had to be compressed to keep data processing costs within reason, and some additional data processing was necessary to accommodate the system used to develop Eulerian model input.

The NAPAP point source master file was analyzed to determine how many emission points would be required to represent 90 percent or more of total $SO_2$, $NO_x$, and VOC emissions. It was discovered that with an emission cutoff of 100 tons per year for $SO_2$ and $NO_x$ and 50 tons per year for VOC, 98.1% of $SO_2$, 94.5% of $NO_x$, and 89.9% of VOC would be represented. It was decided to use these cutoffs for the file compression and also to include all ammonia emission points. Sulfate emissions in the compressed file represented 91.2% of total point source sulfate emissions. The compressed file of major point sources contained 25,298 emission points compared to about 201,000 in the entire master file. The remaining point sources were combined by county and included as a separate area source category for every county in the study area.

Due to limitations of the data processing, some modifications to the master files were made to facilitate the use of NAPAP data for developing Eulerian model input. These included:

- Elimination of TSP and CO data from the point and area source master files.
- Elimination of industrial fuel-coke, industrial fuel-process gas, vessels-coal, unpaved road travel, and unpaved airstrip LTOs from the area source master file.
- Restructuring the area source master file to occupy the first 54 available locations.
- Disaggregating the nationwide NAPAP master files into four smaller files based on time zone boundaries.

The compressed inventory, designated Version 4.1, was processed into an input file for use in Eulerian modeling by the Regional Model Data Handling System (RMDHS) which applied temporal, spatial, and species allocation factors to the data. The resulting Eulerian Modeling Emissions Inventory Version 4.2 represented hourly emissions for 15 pollutants for a typical summer weekday in 1980.

### Version 5.2

As was the case for Version 4.0 of the 1980 NAPAP inventory, it was desirable to compress Version 5.0 of the point source file to limit data processing time for developing Eulerian model input. Table 3-6 summarizes the emission cutoffs for each pollutant and the percentage of the total point source emissions represented by the major emission points in Version 5.0. Detailed data for only the 34,500 major emission points is maintained in Version 5.0. The remaining point source emissions (minor points) were aggregated by county and treated as an area source category in Version 5.0.

Canadian emissions, added to the Version 5.0 inventory, were needed on a 20 x 20 kilometer grid basis. The grid system being used for the U.S. was extended northward into Canada to 60° latitude, while the westernmost boundary of the U.S. grid system, 125° longitude, was preserved for the Canadian inventory. Thus, a portion of northern Quebec and Western British Columbia fell outside the grid system. The grid system was extended on the east to cover all Canadian provinces. It should therefore be noted that the Canadian emission values reported in the Version 5.2 NAPAP inventory do not constitute total Canadian emissions.

Once the NAPAP grid system for Canada was defined, its description was furnished to the Canadian Land Directorate, which provided available allocation data for the 20 x 20 kilometer NAPAP grids in each province in Canada. A more detailed discussion of spatial allocation of Canadian data can be found in Section 6.

A number of data processing limitations were discovered during the development and QA of the 4.2 resolved inventory, which led to the conclusion that RMDHS was unsuitable for use with the Version 5 data. The Flexible Regional Emissions Data System (FREDS) was developed as a replacement. Each of the five FREDS modules, executed sequentially to generate the NAPAP Version 5.2 Emission Inventory, analyzes incoming data for validity and quality. The development and QA of the 5.2 inventory using FREDS is documented in detail in Section 7 of this report.

The resulting NAPAP 5.2 Emissions Inventory contains data resolved to the hourly level for any of the 12 temporal scenarios shown in Table 3-7. $NO_x$ emissions are allocated between NO and $NO_2$, TSP emissions are allocated into constituent alkaline dust species, and hydrocarbons are divided into 28 photochemical reactivity classes. Data can be resolved to the 20 x 20 kilometer grid level for the 48 contiguous United States and Canada north to 60° latitude.

TABLE 3-6. SIZE CUTOFFS FOR VERSION 5.0 OF THE NAPAP POINT SOURCE INVENTORY

| Pollutant | Emission point cutoff (tons/yr) | Percentage of total point source emissions represented |
|---|---|---|
| $SO_x$ | 100 | 98.1 |
| $NO_x$ | 100 | 93.4 |
| Total VOC | 50 | 89.9 |
| Sulfate | 50 | 86.4 |
| Ammonia | 100 | 93.4 |
| Chloride | 100 | 91.4 |
| Fluoride | 50 | 86.6 |
| Lead | 5 | 89.1 |
| TSP | 50 | 88.2 |
| CO | 100 | 96.7 |

TABLE 3-7. TEMPORAL SCENARIOS AVAILABLE UNDER THE 1980 NAPAP EMISSIONS INVENTORY, VERSIONS 5.2 AND 5.3

| FREDS temporal allocation scenario number | Scenario |
|---|---|
| 1 | Winter Weekday |
| 2 | Winter Saturday |
| 3 | Winter Sunday |
| 4 | Spring Weekday |
| 5 | Spring Saturday |
| 6 | Spring Sunday |
| 7 | Summer Weekday |
| 8 | Summer Saturday |
| 9 | Summer Sunday |
| 10 | Fall Weekday |
| 11 | Fall Saturday |
| 12 | Fall Sunday |

Following the original processing of the 5.0 inventory through FREDS, a problem was discovered with the speciation of hydrocarbons which resulted in an overestimation of all THC classes, particularly formaldehyde. FREDS was rerun on point sources to correct the averages; however, data processing costs and the relative magnitude of the overall error for area sources (roughly 3.5%) precluded rerunning the area source FREDS modules. The precise magnitude of the hydrocarbon class overestimation is dependent on source category, and can range as high as 95 percent for SCCs corresponding to distillate oil combustion. Most categories, however, show zero error, and all major THC source categories exhibit errors of no more than 5 percent

Additional QA revealed that not all point source $NO_x$ emissions in the 5.0 inventory were being apportioned into NO and $NO_2$ in the 5.2 inventory, resulting in an apparent shortfall of 1.3 percent. This was due to the presence of several blank $NO_x$ speciation profiles in source categories with nonzero $NO_x$ emissions. The profiles were updated to reflect the default $NO_x$ split (95% NO, 5% $NO_2$) prior to the rerunning of FREDS to ensure that all annual $NO_x$ is accounted for in the resolved inventory.

It should also be noted that the QA for the 5.0 and 5.2 inventories is not mutually exclusive. A number of additions and modifications performed on the Version 5.0 inventory and enumerated in previous sections were geared toward development and QA of the resolved inventory. Examples include operating data updates (temporal), SCC level emissions (spatial) and VOC/THC updates (species). Conversely, the gridded emission density maps developed from Version 5.2 were instrumental in locating inconsistencies within the 5.0 inventory. For example, a grid map of annual $NO_x$ emissions identified a problem with data from area source category 44 in Vermont, which was traced to an order of magnitude error in activity level and subsequently rectified.

Also, the updates performed on hydrocarbon classes described above necessitated an update to annual (5.0) VOC emissions to ensure that they accurately represented total hydrocarbons less nonreactive species. Since area source emissions of THC classes remained slightly high, area source VOC in both the 5.0 and 5.2 inventories is correspondingly low; however, this error has been estimated to be no greater than 0.4 percent over the NAPAP study area.

### Version 5.3

EPA's Atmospheric Sciences Research Laboratory requested an inventory to support applications of the Regional Oxidant Model (ROM) throughout the NAPAP study area. The ROM apportions hydrocarbons into classes based on carbon bond IV chemistry, a method not supported under Version 5.2. However, the flexible speciation capabilities of FREDS and the associated program PSPLIT allowed the generation of a new resolved inventory from the Version 5.0 annual data. ASRL modified the speciation program (PSPLIT) and generated a set of speciation factors to apportion total hydrocarbons into 10 reactivity classes consistent with carbon bond IV mechanisms. Using the new factors, the Version 5.0 inventory was reprocessed through the FREDS system to create Version 5.3. This newest version of the NAPAP inventory was forwarded to ASRL, which verified the accuracy of the speciated data. Version 5.3 emissions were also checked against totals in Version 5.2 to ensure consistency and accuracy.

## SECTION 4

## NAPAP VERSION 5 EMISSION FACTORS

Emission factors are used by NEDS to compute estimates of emissions associated with a process when a more accurate estimate is not supplied to the system. For the NEDS criteria pollutants ($SO_2$, $NO_x$, CO, VOC, and total suspended particulates), these factors were available from the October 1985 NEDS Emission Factor Listing. Generally, these factors are taken from AP-42. In some cases, however, they may be derived from better information not yet incorporated into AP-42 or based on the similarity of one process to another for which emissions information does exist.

Emissions component species included in the 1980 NAPAP Emission Inventory are:

- Sulfur Dioxide ($SO_2$)
- Oxides of Nitrogen ($NO_x$)
- Volatile Organic Compounds (VOC)
- Total Hydrocarbons (THC)
- Carbon Monoxide (CO)
- Lead (Pb)
- Primary Sulfates ($SO_4$)
- Ammonia ($NH_3$)
- Hydrogen Chloride (HCl)
- Hydrogen Fluoride (HF)
- Total Suspended Particulates (TSP), including Alkaline Dusts

Due to a lack of standardized, reliable sources of data, NAPAP developed emission factor reports specifically for primary sulfates, hydrogen fluoride, hydrogen chloride, and ammonia. In addition, emission factors for alkaline dust fractions were developed by Canada and incorporated into the NAPAP inventory. These reports review analyses of existing data on emissions from a variety of source categories and present a tabulation of emission factors appropriate for use with the NAPAP Emissions Inventory. The reliability of the emission factors is discussed and areas where data are either lacking or incomplete are identified. A summary of each report is presented below.

## PRIMARY SULFATE EMISSION FACTORS

The primary sulfate emission factor report discussed four major activities:

1. a summary discussion of primary sulfate formation mechanisms thought to be prevalent in combustion processes;
2. assessment of the state-of-the-art methodology for primary sulfate sampling and analysis of source emissions;
3. review of the SURE (Klemm, 1981) and WG3B (1982) primary sulfate emission inventories; and
4. collection, review, and calculation of primary sulfate emission factors derived from additional field studies not included in the SURE and WG3B inventories.

Primary sulfate emission factors recommended for use in the NAPAP Emissions Inventory are given in Table 4-1. The factors are reported for a number of SCCs based on an analysis of available data. Most of the current data set is for fossil fuel combustion in the industrial and utility sectors. The emission factors have been calculated to a normalized Emissions Information System (EIS) format as:

Sulfate emissions per SCC unit = (Emission factor x percent sulfur content of fuel)

The emission factors given in Table 4-1 reflect sulfate emitted as $SO_4^{-2}$. Limited data available suggest that sulfate emissions can be markedly affected by fuel sulfur content and other parameters such as furnace oxygen levels and trace element content of the fuel. For source categories other than fossil fuel combustion, sulfate emission factors are reported in standard SCC units or as percentages of mass particulate emissions.

The calculation of specific primary sulfate emission factors was based on the following hierarchical selection process.

1. Where available, all field measurements using the CCS procedure were considered as the prime data set.
2. Sulfate emission assessments were aggregated for different point sources within the same source category only if fuel composition and emission controls were similar.

## TABLE 4-1. PRIMARY SULFATE EMISSION FACTORS

| Source category | Control device | Primary sulfate emission factor | Rating |
|---|---|---|---|
| Electric Utilities - External Combustion | | | |
| Eastern bituminous coal | ESP | 0.385 lb/ton | A |
| | ESP and FGD | 0.250[a] | C |
| Western bituminous coal | ESP | 1.290 | B |
| | ESP and FGD | 0.761 | C |
| Lignite | ESP | 1.951 | C |
| Residual oil (>1% sulfur content) | Fuel oil additives | 5.439 lb/1,000 gallons[b] | B |
| Industrial - External Combustion | | | |
| Eastern bituminous coal | Multiclones | 2.646 lb/ton | B |
| | Multiclones and FGD | 0.462 | C |
| Residual oil | Multiclones | 5.296 lb/1,000 gallons | D |
| | Multiclones and FGD | 2.616 | D |
| Commercial/Institutional - External Combustion | | | |
| Residual oil (<1% sulfur content) | Fuel oil additives | 25.07 lb/1,000 gallons[b] | C |
| Space Heating - External Combustion | | | |
| Distillate oil | None | 5.65 lb/1,000 gallons[b] | C |
| Industrial Process - Chemical Manufacturing | | | |
| $H_2SO_4$ - contact process | Demister | 0.100 lb/ton acid produced | C |
| Electric Utilities - External Combustion | | | |
| Industrial Process - Primary Metals | | | |
| Primary copper smelters | None | | |
| total | | 22.5 lb/ton concentrated ore | C |
| roaster | | 1.08 | C |
| smelter | | 5.76 | D |
| converter | | 15.66 | D |
| Primary zinc smelters | None | 55.5 lb/ton processed | D |

(continued)

TABLE 4-1 (continued)

| Source category | Control device | Primary sulfate emission factor | Rating |
|---|---|---|---|
| Industrial Process - Primary Metals (cont.) | | | |
| Primary aluminum smelter | None | 0.5% of $SO_2$ | D |
| Iron production | None | 2.0% of $SO_2$ | D |
| Coke | None | 0.320 lb/ton coal charged | D |
| Industrial Process - Wood Products | | | |
| Kraft pulp mill | None | (1) | C |
| Sulfite pulp mill | None | (2) | C |
| Wood/bark waste | Multiclone | 3.6 lb/ton bark | D |
| Industrial Process - Mineral Product | | | |
| Cement manufacturing | None | (3) | D |
| Gypsum manufacturing | None | (4) | D |
| Industrial Process - Petroleum Industry | | | |
| Fluid crackers | ESP | 15.0 lb/1,000 barrels oil | C |
| Sulfur recovery Claus plants | None | 2.8 lb/ton produced | C |

[a] Emission factor based on average sulfate scrubbing efficiency of 35 percent.

[b] Emission factor applicable only to low sulfur content (0.3 percent S) residual fuel oil.

(1) Total sulfate emissions for kraft pulp mills estimated as 85 percent of NEDS total particulate emissions from kraft recovery boilers.

(2) Total sulfate emissions from sodium-base sulfite mills estimated as 70 percent of NEDS $SO_2$ emissions; for calcium-base sulfite mills estimated as 25 percent of NEDS $SO_2$ emissions.

(3) Total sulfate emissions from cement kilns estimated as 5.6 lb/ton of cement on an uncontrolled basis. Average particulate control efficiency from NEDS data assumed to apply in order to calculate actual emissions.

(4) Total sulfate from gypsum plants estimated as 56 percent as NEDS actual particulate emissions.

The percentage estimates of the sulfate content of particulate matter in footnotes 1 through 4 were reported in: Draft Report P-3901/6, Anthropogenic Sources and Emissions of Primary Sulfates in Canada, Ontario Research Foundation, Contract No. 477SS.KE204-1-0318, November 30, 1981.

3. Emissions data acquired through the use of methods other than CCS were included only if multiple measurements yielded data with minimal scatter.

There are a number of source categories for which no experimental field data exist. At present, the only alternative to an emission factor for the NAPAP Emissions Inventory is the assignment of an "assumed" factor already contained within the source allocation codes for the Regional Model Data Handling System (RMDHS). However, most of the regional mass emissions of primary sulfates should occur from those source categories for which emission factors have already been substantiated (utility and industrial fossil fuel burning). The best approach to improving the NAPAP Emissions Inventory sulfate component may be an expanded field measurement activity which focuses on the source categories which have not been characterized sufficiently, but which are potentially significant contributors to regional emissions. Improvements are needed in the data base for low sulfur residual oil-fired industrial and commercial boilers. Field measurements using the CCS procedure are recommended for this source type which is a significant source of sulfur emissions in major metropolitan areas in the eastern United States. In addition, sulfate emissions from the pulp and paper industry need further characterization given the large preliminary emission factors reported by WG3B. Pulp mill operations are concentrated in the acid deposition sensitive Northeast and represent a major $SO_2$ and particulate source contributor in the southeastern United States.

## HCl AND HF EMISSION FACTORS

A literature search was conducted to identify significant anthropogenic emission sources and to estimate emission rates for each source. The emission factors summarized in Table 4-2 were developed from the most recent data available. When available, emission factors based on tests performed by a sound methodology and accompanied by adequate background data were chosen. Emission factors were evaluated on a scale of A through E, with an A representing data taken from a large data base covering a good cross section of the industry, determined from valid test methods, and possessing a high confidence level. Data rated E were developed from a small data base, which was not necessarily representative of the industry, and consequently have a low confidence level. Ratings of B through D represent data with intermediate confidence levels. National emission estimates for base year 1980 were calculated by multiplying the level of activity (production/use rates) for each emission factor for that source. National emission estimates provide a measure of the relative importance of each source category.

Hydrogen chloride is emitted from coal combustion, waste incineration, and organic chemical manufacture. Hydrogen fluoride is emitted primarily as a by-product of coal combustion and primary aluminum production. Other sources of HF include the fertilizer industry and the hydrogen fluoride manufacturing industry.

The rates at which HCl and HF are emitted during coal combustion are functions of coal composition and air pollution control techniques. A study

## TABLE 4-2. HYDROGEN CHLORIDE AND HYDROGEN FLUORIDE EMISSION FACTORS

| Source | Emission factor | Rating |
|---|---|---|
| --HCl-- | | |
| Coal Combustion | | |
| Utility Boiler | | |
| Bituminous | 78.8 lb/$10^9$ Btu | A |
| Anthracite | 35.5 lb/$10^9$ Btu | A |
| Lignite | 1.0 lb/$10^9$ Btu | A |
| Industrial Boilers | | |
| Bituminous | 78.8 lb/$10^9$ Btu | A |
| Anthracite | 35.5 lb/$10^9$ Btu | A |
| Lignite | 1.0 lb/$10^9$ Btu | A |
| Residential Boilers | | |
| Bituminous | 60.5 lb/$10^9$ Btu | C |
| Anthracite | 120 lb/$10^9$ Btu | C |
| Lignite | 35.1 lb/$10^9$ Btu | C |
| Propylene Oxide Manufacture | 7.46 lb/ton | B |
| Incineration | | |
| Municipal Waste | 5.0 lb/ton[a] | E |
| Industrial Waste | 5.35 lb/ton[a] | E |
| Liquid Waste | 1.19 lb/ton[a] | E |
| By-product Hydrochloric Acid Production | | |
| (without final scrubber) | 3.0 lb/ton | C |
| (with final scrubber) | 0.2 lb/ton | C |
| --HF-- | | |
| Coal Combustion | | |
| Utility Boiler | | |
| Bituminous | 9.4 lb/$10^9$ Btu | A |
| Anthracite | 7.2 lb/$10^9$ Btu | A |
| Lignite | 1.2 lb/$10^9$ Btu | A |
| Industrial Boilers | | |
| Bituminous | 9.4 lb/$10^9$ Btu | A |
| Anthracite | 7.2 lb/$10^9$ Btu | A |
| Lignite | 1.2 lb/$10^9$ Btu | A |
| Residential Boilers | | |
| Bituminous | 6.37 lb/$10^9$ Btu | C |
| Anthracite | 4.95 lb/$10^9$ Btu | C |
| Lignite | 6.34 lb/$10^9$ Btu | C |
| Hydrogen Fluoride Manufacture | | |
| Tail gas vent | | |
| Uncontrolled | 25.0 lb/ton | E |
| Controlled - caustic rubber | 0.2 lb/ton | E |

[a] Based on 1970 data.

of coal combustion in utility boilers conducted by the Bureau of Mines found the majority of chlorine contained in coal to volatilize and form HCl. There is a need for additional scientific data which directly assess the chemical form of fluorine emitted during coal combustion. In lieu of such data and because of the chemical similarity between fluorine and chlorine, it is assumed that all fluorine in the feed coal reacts to form HF.

Data compiled in 1979 on trace element compositions in coal were obtained from studies by TRW and Alliance and were used to calculate emission factors for coal combustion in utility and industrial boilers. These factors were assigned an A ranking due to the number of tests conducted, availability of information concerning accuracy, and type of test methods used. Recent data (1985) developed by the Department of Energy's Pittsburgh Energy Technology Center from lab tests on bituminous coal in utility boilers resulted in emission factors which compare favorably with those developed from the TRW/Alliance study.

Scrubbers, electrostatic precipitators (ESPs), cyclones, and baghouses are used frequently on coal-fired utility boilers as flue gas control techniques. The primary purpose of these controls is to remove particulate matter from the flue gas stream. The efficiency of wet scrubbing devices has been reported at about 80 percent for HCl and HF emissions from bituminous coal-fired utility boilers. Baghouses which have sorbent or alkaline materials introduced may remove a substantial amount of HCl and HF. A study of the use of nacholite and sodium bicarbonate as dry sorbent resulted in a 95 to 98 percent HCl removal. However, under normal operating practices, baghouses, ESPs, and cyclones have no significant effect on removal of HCl or HF.

Another control technique, flue gas desulfurization, is used to remove sulfur oxides from coal combustion. Data have indicated that flue gas desulfurization is at least 95 percent effective in removal of HCl. No data are available to quantify removal efficiencies of HF.

Several emission factors received low ratings because of limited data. Factors for HCl from residential boilers, hydrochloric acid manufacturing, and waste incineration received intermediate to poor rankings because of the small number of plants actually tested and the absence of information concerning test methodology. Factors for HF emissions from residential boilers, phosphoric acid production, and hydrogen fluoride manufacture were assigned low rankings based upon the low number of studies, absence of information concerning accuracy of test methods, and the number of assumptions made in determining these factors. Additional data which address emission rates of HCl and HF from these sources would be beneficial.

## $NH_3$ EMISSION FACTORS

Ammonia emission factors for the 1980 NAPAP inventory were developed using a methodology similar to that used for HCl/HF emission factors, including a literature search, identification of the best available data, and assignment of confidence ratings. As was done for emission factors for HF and

HCl, emission factors for $NH_3$ were assigned a confidence rating on a scale of A through E, with an A representing a high confidence level, and ratings of B through D representing intermediate confidence levels. The ammonia emission factors and their related confidence ratings are summarized in Table 4-3.

Anthropogenic sources of ammonia emissions include field application of livestock wastes, beef cattle feedlots, fertilizer manufacture and use, fuel combustion, ammonia synthesis, petroleum refineries, and coke manufacture.

Ammonia volatilization rates from livestock wastes applied to agricultural land are based on several sets of data. Van Dyne, et al. compiled information on amounts of manure used in land application while estimates of ammonia volatilization for various waste management practices and for various types of livestock were calculated from data developed by Huff, et al. and Westerman, et al. Ammonia emission factors were calculated from these data. Because several assumptions were made in deriving the factors, and because the accuracy of these assumptions is uncertain, these factors should be considered at best to be gross estimates. Volatilization rates vary drastically with weather conditions and waste management practices.

Ammonia from beef cattle feedlots were reported by Peters, et al., and Hutchinson, et al. Data ranged over three orders of magnitude; averages of the data from these two studies provide emission factors which should again be considered gross estimates which will vary depending on weather and waste management practices.

AP-42 data were used to characterize emissions from fertilizer manufacture, ammonia synthesis, petroleum refineries, and coke manufacture. The fertilizer manufacture emission factor varies over several orders of magnitude depending upon whether a plant uses an excess of ammonia or an excess of acid in the process. Emissions from petroleum refineries are primarily from catalytic cracking operations. Sources in the manufacture of coke include oven charging, door leaks, coke pushing, and quenching. Emission factors from all of these source categories were rated at a high level of confidence except coke manufacture, which is based on a small amount of data from tests conducted in Poland.

Other ammonia sources include land application of anhydrous ammonia fertilizer and combustion of fuels such as coal, fuel oil, natural gas, and gasoline. Emission factors for these sources were rated at intermediate to low confidence levels because they were based on small amounts of data as well as data of questionable origin. Several emission factors for fuel combustion were found to originate from estimates published three decades ago that lack a published basis; despite this deficiency, these estimates have been repeated in numerous subsequent reports. Additional data addressing ammonia emissions from combustion sources that use current technology are needed to properly characterize $NH_3$ emissions.

## TABLE 4-3. AMMONIA EMISSION FACTORS

| Source | Emission factor | Rating |
|---|---|---|
| Combustion Sources | | |
| Coal | 0.00056 lb/ton coal[a] | D |
| Fuel oil | 0.8 lb/$10^3$ gallons fuel[a] | E |
| Natural gas | | |
| utility boilers | 3.2 lb/$10^6$ $ft^3$ gas[a] | C |
| industrial boilers | 3.2 lb/$10^6$ $ft^3$ gas[a] | C |
| commercial boilers | 0.49 lb/$10^6$ $ft^3$ gas[a] | C |
| Mobile sources | | |
| leaded gasoline | 0.42 lb/$10^3$ gallons fuel[a] | D |
| unleaded gasoline | 0.63 lb/$10^3$ gallons fuel[a] | D |
| diesel | 0.95 lb/$10^3$ gallons fuel[a] | E |
| Livestock Wastes | | |
| Beef cattle feedlocks | 13 lb/animal marketed[b] | E |
| Manure field application | | |
| feed cattle | 7.9 | E |
| range cattle | 0.22 | E |
| dairy cows | 26 | E |
| swine | 3.1 | E |
| sheep | 2.0 | E |
| laying hens | 0.19 | E |
| broilers | 0.024 | E |
| turkeys | 0.16 | E |
| Ammonium Nitrate Manufacture | | |
| Neutralizer | 0.86-36.0 lb/ton | B |
| Solids formation | | |
| evaporation/concentration | 0.54-33.4 lb/ton[c] | A |
| high density prill towers | 57.2 lb/ton[c] | A |
| low density prill towers | 0.26 lb/ton[c] | A |
| rotary drum granulators | 59.4 lb/ton[c] | A |
| pan granulator | 0.14 lb/ton[c] | A |
| high density prill coolers | 0.04 lb/ton[c] | A |
| low density prill coolers | 0.30 lb/ton[c] | A |
| low density prill dryers | 0-3.18 lb/ton[c] | A |
| rotary drum granulator coolers | 1.19 lb/ton[c] | A |
| pan granulator coolers | 0 lb/ton[c] | A |

(continued)

TABLE 4-3 (continued)

| Source | Emission factor | Rating |
|---|---|---|
| Anhydrous Ammonia Fertilizer Application | 19 lb/ton fertilizer | C |
| Petroleum Refineries | | |
| FCC units | 54 lb/$10^3$ barrels feed[d] | B |
| TCC units | 6 lb/$10^3$ barrels feed[d] | B |
| Reciprocating engine compressors | 0.2 lb/$10^3$ $ft^3$ gas[a] | B |
| Ammonia Synthesis | | |
| Carbon dioxide regeneration | 2.0 lb/ton[c] | A |
| Condensate stripping | 2.2 lb/ton[c] | A |
| Urea Manufacture | | |
| Solution formation/ concentration | 18.2 lb/ton[c] | A |
| Solid formation | | |
| nonfluidized bed prilling | | |
| agricultural grade | 0.87 lb/ton[c] | A |
| fluidized bed prilling | | |
| agricultural grade | 2.9 lb/ton[c] | A |
| feed grade | 4.1 lb/ton[c] | |
| drum granulation | 2.2 lb/ton[c] | A |
| rotary drum cooler | 0.0051 lb/ton[c] | A |
| Coke Manufacture | | |
| Oven charging | 0.02 lb/ton coal charged | D |
| Door leaks | 0.06 lb/ton coal charged | D |
| Coke pushing | 0.1 lb/ton coal charged | D |
| Quenching (contaminated water) | 0.28 lb/ton coal charged | D |
| Ammonium Phosphate Manufacture | 0.14 lb/ton[c] | A |

[a] Refers to pounds ammonia emitted per unit of fuel burned.

[b] Refers to pounds ammonia emitted per head of cattle marketed from feedlots.

[c] Refers to pounds ammonia emitted per ton of product.

[d] Refers to pounds ammonia emitted per $10^3$ barrels of feed to the cracking unit.

## ALKALINE DUST EMISSION FACTORS

Anthropogenic point source alkaline particulate emission factors were developed by Meteorological and Environmental Planning Limited and the Ontario Research Foundation using the following approach:

1. Identify major anthropogenic sources of particulate Ca, Mg, Na, and K emissions.
2. Estimate the amount of total particulate substances from these sources in all the provinces and nationally.
3. Estimate the amount of Ca, Mg, Na, and K in these particulates.
4. Estimate the specific types of alkali metal compounds. The total elemental emission estimates include both the reactive and nonreactive compounds (from the acid rain point of view). The nonreactive compounds are salts or rock materials (e.g., calcium silicates), whereas the reactive materials are defined as portions of elements associated with carbonates, hydroxides, oxides, and carbides.

Sources considered were grouped into six sectors:

- Industrial Processes (21 classes of sources)
- Fuel combustion (power generation and fuel wood)
- Transportation (gasoline powered vehicles)
- Solid Waste Incinerators (municipal incinerators and wigwam burners)
- Open sources (paved roads, unpaved roads, agricultural tillings, construction, mine tillings)
- Open burning (slash burning)

Alkaline particulate emissions from these sectors are assumed to be 89 percent of total Canadian anthropogenic particulate emissions.

Generic source descriptions were allocated to SCC categories. Where possible, six-digit SCCs are utilized, with the assumption that the factors are equally applicable to all relevant particulate emissions within subcategories to the eight-digit level. Table 4-4 presents a listing of emission factors as well as an uncertainty rating defined as follows:

A: Actual Canadian test data.

B: Source measurement conducted elsewhere for similar industry.

## TABLE 4-4. ANTHROPOGENIC POINT SOURCE ALKALINE PARTICULATE EMISSION FACTORS

| SCC | Generic source description | Units | Percentage of total particulate emission as an alkali metal[a] | | | | Rating[b] |
|---|---|---|---|---|---|---|---|
| | | | Ca | Mg | Na | K | |
| 3-03-023 | Iron Ore Mining and Beneficiation | Tons Pellets Produced | 0.49 | 0.24 | 0 | 0 | E |
| 3-03-008 | Iron and Steel Industry | Tons Produced | 3.98 | 1.66 | 1.74 | 5.63 | E |
| 3-03-006 | Ferroalloy Manufacture | Tons Produced | 1.06 | 1.45 | 1.35 | 0 | C |
| 3-04-006 | Magnesium Production | Tons Processed | 23.81 | 13.90 | 0 | 0 | C |
| 3-04-020 | Mining and Rock Quarrying | Tons Raw Material | 5.77 | 1.69 | 0 | 0 | D |
| 3-05-016 | Line Manufacture | Tons Limestone Processed | 33.89 | 5.01 | 0.50 | 0 | C |
| 3-05-020 | Stone Processing | Tons Raw Material | 14.38 | 4.12 | 0 | 0 | C |
| 3-05-025 | Sand and Gravel | Tons Product | 0.65 | 0.70 | 0 | 0 | D |
| 3-05-006 | Cement Manufacture | Tons Cement Produced | 28.50 | 0.78 | 0 | 0 | B |
| 3-05-011 | Concrete Batching | Tons Processed | 46.00 | 1.50 | 0 | 0 | C |
| 3-05-008 | Clay Products Manufacture | Tons Input to Process | 0.85 | 0.90 | 0 | 0 | D |
| 3-07-001 | Sulphate (Kraft) Pulping | Air Dry Tons Unbleached Pulp | 0.12 | 0 | 1.38 | 0 | C |
| 1-01-001 | Power Generation by Utilities | Tons Burned | 1.62 | 1.71 | 0.82 | 0.44 | C |
| 1-01-002 | | | | | | | |
| 1-01-003 | | | | | | | |
| 1-02-001 | | | | | | | |
| 1-02-002 | | | | | | | |
| 1-02-003 | | | | | | | |
| 1-03-001 | | | | | | | |
| 1-03-002 | | | | | | | |
| 1-03-003 | | | | | | | |
| 3-90-001 | | | | | | | |
| 3-90-002 | | | | | | | |
| 3-90-003 | | | | | | | |
| 1-01-009 | Fuelwood Combustion | Tons Burned | 0.05 | 0.04 | 0.04 | 1.95 | E |
| 1-02-009 | | | | | | | |
| 1-03-009 | | | | | | | |
| 1-05-002-09 | | | | | | | |
| 3-90-009 | | | | | | | |
| 5-02-002-01 | | | | | | | |
| 5-01-001 | Municipal Incineration | Tons Burned | 0.57 | 0.14 | 0.57 | 0.48 | E |
| 5-01-002-01 | | | | | | | |
| 5-01-005-07 | | | | | | | |
| 5-02-001 | | | | | | | |

[a] Example: For SCC 3-03-023, emissions of alkaline calcium particulate are calculated as: (particulate per ton pellet produced) x (0.0049). Total alkaline particulate emitted is calculated as: [(particulate per ton pellet produced) x (0.0049)] + [(particulate per ton pellet produced) x (0.0024)].

[b] Uncertainty rating of alkali metal content as B = ±25%, C = ±50%, D = ±75%, and E = ±100%.

C: Inferred data based on product analysis, feed analysis or other secondary material.

D: Limited data for one or more operations or materials within a sector or related sector. This is extrapolated to estimate required data.

E: Estimate only.

It should be noted that there is additional uncertainty associated with assigning these Canadian factors to U.S. particulate emissions. It has been assumed that the alkali metal contents of U.S. and Canadian particulate emissions are identical. It should also be noted that there are other source categories which emit particulate matter containing calcium, magnesium, sodium, and/or potassium. However, these elements were found to be associated anions other than carbonates, hydroxides, oxides, and carbides which represent the alkaline fraction.

# SECTION 5

# DEVELOPMENT OF EMISSIONS ESTIMATES FOR THE UTILITY SECTOR

Emissions from electric utilities account for a large share of the total acid deposition precursor emissions; it has been estimated that in 1980 these emissions accounted for 65 percent of $SO_2$ and 29 percent of $NO_x$ emissions from all U.S. sources. As a result, the National Acid Precipitation Assessment Program (NAPAP) has placed special emphasis on the development of accurate utility emissions data. NAPAP's Task Group on Emissions and Controls has sponsored work both in developing estimates of current emissions from the utility industry and in projecting future emissions. Part of this work entailed the development of a single, comprehensive utility-related data file: the NAPAP Utility Reference File (NURF) (Pechan, 1985). The NURF was created to meet the broad utility-related data needs of all NAPAP work groups, including atmospheric modeling, emissions forecasting, and assessment. In the 1980 NAPAP Emissions Inventory Version 5.0, the NURF data were used to provide the utility sector emissions estimates; these estimates were integrated into the NAPAP inventory for all U.S. electric utilities. This section documents the development and use of the NURF and its derivative files, focusing on the integration of the NURF data into the NAPAP inventory.

## NAPAP UTILITY REFERENCE FILE (NURF)

### Introduction

The NURF is a central repository of data for utility operations and emissions, designed to facilitate analysis of the electric utility sector. Information is maintained on all conventional, nuclear, and hydroelectric utility generating units, including the following data: $SO_2$, $NO_x$, and TSP emissions by fuel and unit; stack parameters on a unit-specific basis; and information on units coming on-line or converting to coal after 1980. Because the NURF data were compiled and cross checked using several data sources, the NURF is considered to present an accurate picture of the U.S. utility industry for 1980.

### Data Sources

NURF was developed using information from Version 4.0 of the 1980 NAPAP Emissions Inventory (Toothman, 1984), a reimplementation of the Unit Inventory (Pechan, 1983), and new data; additional updates were obtained from a variety of sources. Table 5-1 lists major data inputs to NURF. In developing NURF, the greatest reliance was placed on data available from public sources, especially files available in machine-readable form.

TABLE 5-1. MAJOR DATA INPUTS TO NURF

| Name | Type[a] | Level of detail | Data provided |
|---|---|---|---|
| EIA Form 759 | A | Plant | Fuel consumption and generation |
| FPC Form 423 | A | Plant | Cost and quality of fuels |
| FPC Form 67 | A | Boiler/fuel feeder | Fuels consumed, control equipment, firing type, and bottom type |
| FGDIS | A | Boiler | $SO_2$ scrubber data |
| NAPAP Inventory | A | Boiler | Stack parameters |
| Generating Unit Reference File | A | Unit | Year online, year retired, capacity |
| EPA State Implementation Plan file | A | Unit | TSP, $SO_2$, and $NO_x$ emission limits |
| NERC planned plants | M | Unit | New plants |
| NERC coal conversions | M | Unit | Plant converted or planning conversion to coal |
| DOE coal conversions | M | Unit | Plants converted or planning conversion to coal |
| Nuclear plant status | M | Unit | Status of planned nuclear units |
| $NO_x$ control update | M | Unit | $NO_x$ control measures |
| ANL firing data | A | Unit | Supplemental data on firing types and bottom type |

[a]A = Automated
M = Manual

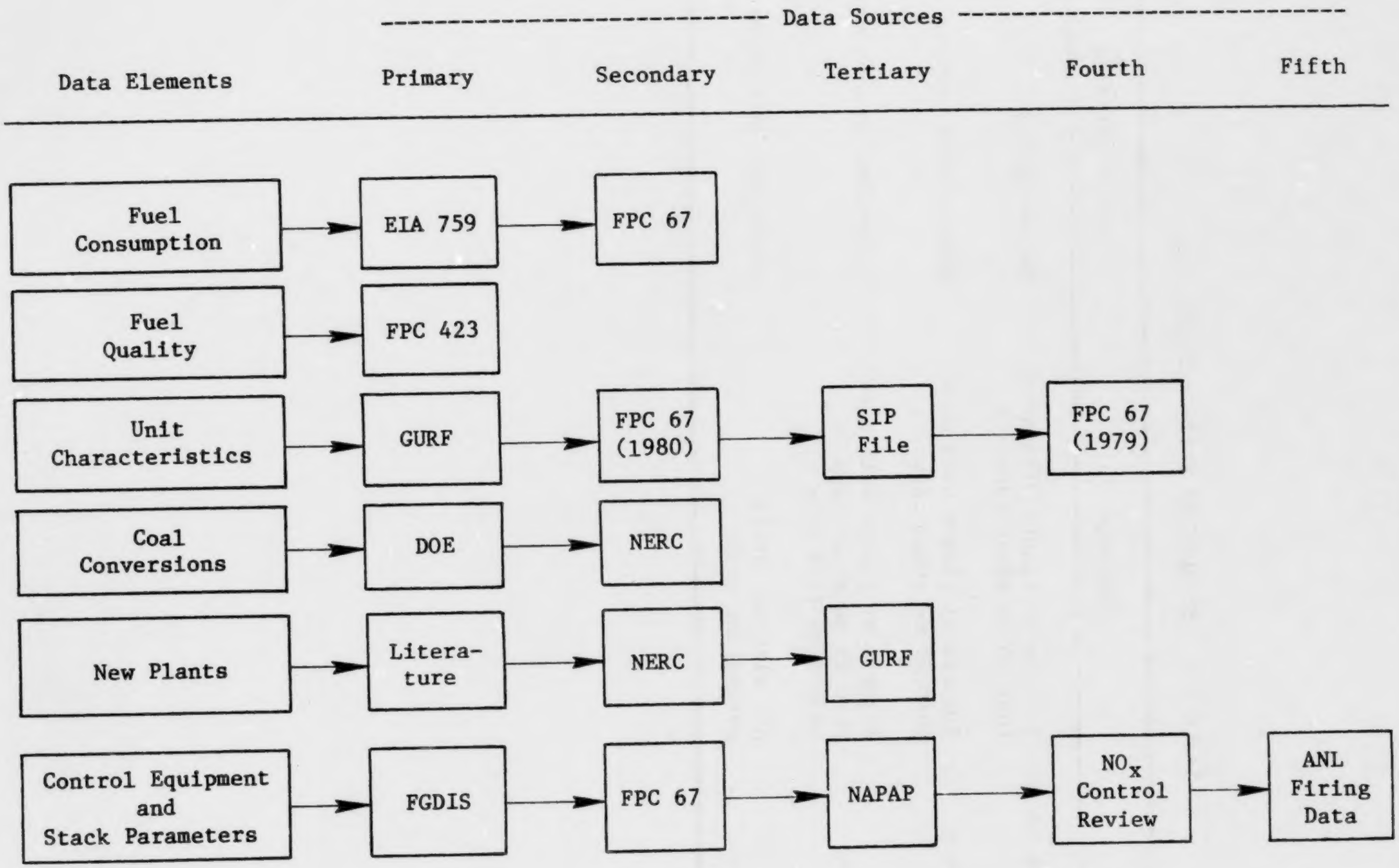
In most cases, a single primary source for each NURF data element was selected. In some cases, more than one source of data was scrutinized and the most appropriate information chosen. These selections were based on the quality of the data source, its date of publication, and its coverage. All other things being equal, published reports (or data files which directly support them) were given highest preference. Data supplied to DOE or reported directly by the industry were given the next highest preference. A summary of the hierarchy of the data sources is presented in Figure 5-1. Some data elements (e.g., heat rate and capacity factor) could not be obtained from standard sources and, therefore, had to be calculated from data that were available. For those cases in which the calculated values were unreasonable, judgments were made as to which of the input values were most accurate; other data were adjusted on a unit-specific basis so that all resultant values were consistent.

Because the coverage of the major contributing data files to NURF differed, it was necessary to compare several data files on a plant-specific basis in order to develop the best possible universe of facilities. Table 5-2 identifies the sources and coverage of the files contributing unit-specific information to NURF. Conflicts between these files were resolved on a case-by-case basis. In most cases in which a conflict occurred, two or more files contained consistent information, and in those cases, the most consistent data were chosen. Preference was given to the U.S. Department of Energy's (DOE) 1980 Form 67 data (U.S. DOE, 1980b) and the Generating Unit Reference File (GURF--U.S. DOE, 1981b), as they contained more recent information.

Operating characteristics such as total generation and total fuels consumed for generation were obtained from DOE's Form 4 (U.S. DOE, 1980a). Form 4 is a monthly data base; for use in NURF, however, the monthly data for 1980 were aggregated into annual totals. Form 4 data were reported by plant and prime mover. For example, a plant having both steam and combustion turbine units would have fuel use and generation data provided for each of these two prime movers.

Unit-specific operational data for 1980 were estimated by applying 1980 unit shares computed from 1980 Form 67 data on fuel use and generation to the corresponding data elements from the 1980 plant and prime mover totals from Form 4. This method was adopted to correct errors associated with the use of incorrectly reported units on Form 67 submissions. Because the Form 67 data were used only to compute shares of violated totals, unit errors in Form 67 data were not carried through to the NURF.

Fuel quality data were obtained from the Federal Power Commission (FPC) Form 423 (U.S. DOE, 1981a). For units with no reported Form 423 information, State average data obtained from Form 423 were used. The State average values used in NURF are listed in the NAPAP Utility Reference File (NURF), Final Report (Pechan, 1985).



Data Sources
Data Elements
Primary
Secondary
Tertiary
Fourth
Fifth
Fuel Consumption
EIA 759
FPC 67
Fuel Quality
FPC 423
Unit Characteristics
GURF
FPC 67 (1980)
SIP File
FPC 67 (1979)
Coal Conversions
DOE
NERC
New Plants
Litera-ture
NERC
GURF
Control Equipment and Stack Parameters
FGDIS
FPC 67
NAPAP
NO$_x$ Control Review
ANL Firing Data

Figure 5-1. Hierarchy of NURF data sources by data element.

TABLE 5-2. SOURCES OF UNIT-SPECIFIC DATA

| Source | Coverage | Unit identifier |
|---|---|---|
| 1979 FPC Form 67 | Boilers at plants with more than 25 MW steam capacity | Boiler number |
| 1980 FPC Form 67 | Boilers at plants with more than 25 MW steam capacity | Boiler/feeder number |
| EPA State Implementation Plan File | Boilers at plants with more than 25 MW steam capacity (based on 1979 Form 67) | Generating unit number |
| Generating Unit Reference File | All electric utility generating units | Generating unit number |

## NURF Structure

Although labeled the NAPAP Utility Reference File for convenience, the NURF is actually a data system, consisting of several data files and computer programs. Because of the diversity of data processing required to create NURF, a combination of programming languages and methodologies was used in its development. Initial data reduction of the larger data files was performed by a series of programs written in Programming Language/I (PL/I). These larger files were reduced to one record per unit (or plant if a plant-level file) and converted to a consistent format using the Statistical Analysis System (SAS). These SAS files were then combined and manipulated using a series of SAS programs. Examples of the processing required include calculation of default state average fuel quality data and assignment of plant technology codes. The result of these manipulations was a final NURF in SAS format. The final processing steps converted the NURF data in its component file form into the set of derivative files which are discussed below.

## NAPAP INVENTORY UPDATES FILE (NIUF)

Because of the vast number of data elements in NURF taken as a whole, it was considered impractical to extensively quality assure the file in its entirety. As a result, only subsets of the NURF data are in distributable form. Three NURF derivative files have been compiled, QA'd, and made available for distribution:

- the Unit Inventory, listing unit-specific data on larger generating units and aggregated information on smaller units;
- the Announced Inventory, containing information on units coming on-line or planned for conversion to coal after 1980; and
- the NAPAP Inventory Updates File (NIUF), containing corrections and addenda to the 1980 NAPAP Inventory.

The NIUF contains EIS transactions that are designed to delete, replace, and supplement utility information in Version 5.0 of the 1980 NAPAP Inventory. In order to accomplish this update of the NAPAP utility data, the NIUF was developed as four subfiles:

- plant I.D. information for facilities which appear to be improperly categorized as utilities in the NAPAP Inventory;
- EIS delete transactions to remove properly categorized utilities from the NAPAP Inventory, in anticipation of their replacement with NURF data;
- EIS add transactions of NURF emissions data for utility sources emitting 100 tons/year or more of $SO_2$, $NO_x$, or TSP; and
- EIS area source add transactions to provide county-level aggregates of utility sources emitting less than 100 tons/year.

Creation of the NIUF required the extraction of all relevant information on utilities from the NAPAP point source file. A candidate list of utility facilities was identified by selecting points that met at least one of the following three criteria:

1. The first three digits of the SCC were 101 or 201.
2. The Standard Industrial Classification Code was 4911, 4931, 4961, or 4900.
3. The first digit of the SCC was one (boiler) and the design capacity was 1 billion Btu per hour or greater.

These criteria were designed to be general enough that all utility sources in the NAPAP Inventory would be identified. It was anticipated that some nonutility sources may have also satisfied these general screening criteria; as a result, the candidate list of facilities meeting the initial screening criteria for utilities was reviewed and compared with other data sources contributing to NURF. A total of 599 NAPAP facilities which were not utility sources as defined in NURF were identified. The state, county, and NAPAP plant ID for each of these sources are listed in the first component of the NIUF. It appears that these sources have been incorrectly classified as utilities in the NAPAP Inventory; as a result, they were not updated in the NAPAP Inventory updates process discussed herein. Source information for these nonutility plants was reviewed; whenever possible, corrections were made to eliminate the utility information. Changes to SIC and SCC codes and heat input were made as necessary to reflect reviews of the data.

Existing data from NURF were match-merged at the plant level with the extracted NAPAP utility point source data. Special emphasis was placed on matching plants that emit at least 100 tons per year of any criteria pollutant because point level emissions data were to be provided for plants having emissions greater than this level. EIS transactions were prepared to delete data for the matched facilities from the NAPAP Inventory in preparation for the replacement with the more accurate NURF data. A total of 1,358 delete transactions were prepared, forming the second component of the NIUF.

After completion of the plant level matching, unit-level matching was performed. Applying the 100 tons per year cutoff, data for 4,648 NURF units were then prepared in the form of EIS transactions to be added to the NAPAP Inventory. These transactions constitute the third component of the NIUF. There are a total of 41,899 transaction records provided.

The fourth component of the NIUF contains aggregated data, by county, on the 3,089 NURF units that emitted less than 100 tons per year of any of the NURF pollutants (TSP, $SO_2$, and $NO_x$). Reported information includes state; county; fuel type; quantity-weighted fuel characteristics (sulfur, ash, and heating value); fuel quantity; and emissions of TSP, $SO_2$, and $NO_x$. This produced a total of 657 data records.

## Integration of the NIUF Into the 1980 NAPAP Inventory (Version 5.0)

In May 1985, the NIUF data were received for integration into the 1980 NAPAP Inventory. Delete transactions from the NIUF were used to delete all utility sources in the NAPAP Inventory. Add transactions, containing point source information for major utilities, were then merged into the point source inventory. Emissions estimates for these additions were generated using the operating rate data supplied in the NIUF and AP-42 emission factors, input to the EIS Master File Maintenance routine. Area source data for minor utility sources were merged into the NAPAP area source inventory in the following categories:

96 Minor Utility Sources - Coal;

97 Minor Utility Sources - Oil; and

98 Minor Utility Sources - Gas.

Emission factors were then prepared to generate HCl, HF, and Pb emissions estimates for the above sources.

## SECTION 6

## DEVELOPMENT OF TEMPORAL, SPECIES, AND SPATIAL ALLOCATION FACTORS

### TEMPORAL ALLOCATION FACTOR DEVELOPMENT

The FREDS Temporal Allocation Module generates a set of temporal allocation factors for each NAPAP point or area source emission record. These factors serve to apportion the annual emissions totals contained in the emission records into 24 hourly totals for a typical weekday, Saturday, or Sunday in each of the four seasons of the year. This discussion of temporal allocation factor development is structured as follows:

1. the form and use of the temporal allocation factors;
2. the development of the factors; and
3. file creation and quality assurance (QA).

#### Form and Use of Temporal Allocation Factors

NAPAP emission data records contain a single annual emissions total. The purpose of the temporal allocation factors is to accurately apportion this total into hour-by-hour subtotals for a weekday, a Saturday, or a Sunday in any season of the year.

The temporal allocation factors take the form of three sets of fractional multipliers, applied to the NAPAP annual emissions records in sequence as follows:

1. Four seasonal factors divide the annual total into four subtotals representing emissions in each of the four seasons;
2. Three daily factors per season divide each seasonal total into three subtotals representing emissions for a typical weekday, Saturday, and Sunday in each season;
3. Twenty-four hourly factors per day divide each daily total into 24 subtotals representing emissions for each hour of that day. After this final step, the annual emissions total has been divided into 288 subtotals (four seasons * 3 day "types"/season * 24 hours/day "type").

The seasonal multipliers for each record sum to unity, as do the hourly multipliers for each season/day type combination. Since daily emissions totals represent emissions for one typical weekday, Saturday, or Sunday in each season, the governing equation for daily allocation factors is:

(65 x weekday factor) + (13 x Saturday factor) + (13 x Sunday factor) = 1

where a season is defined as 91 days (13 weeks). For the purposes of the NAPAP inventory, the four seasons are defined as:

| Season | Months |
|---|---|
| Winter | December, January, February |
| Spring | March, April, May |
| Summer | June, July, August |
| Fall | September, October, November |

Table 6-1 presents an example of the application of a set of temporal allocation factors to total hydrocarbon emissions from area source category 32 (Medium Duty Gasoline Vehicles--Rural Roads). For the sake of clarity, hourly emissions are shown only for summer; however, a similar set of data can be generated for each of the four seasons using the appropriate hourly multipliers. In most emissions categories, the daily and hourly factors do not exhibit a full range of variation, because the data upon which they are based do not allow such fine resolution.

The hourly temporal allocation factors are based on local time. For many applications of the NAPAP emissions data, temporally resolved emissions must be standardized to a common reference (e.g., Greenwich Mean Time). To allow this standardization, a separate Time Zone File was created. For each county in the United States (or Canadian county equivalent), this file contains a key to offset the appropriate hourly emissions pattern from a common reference point. For each county, this file also contains a flag to key proper offset of the hourly emissions if and when Daylight Savings Time is in effect for the county.

## Development of Temporal Allocation Factors

The NAPAP point source emissions records contain operating rate data which allow temporal allocation of yearly emissions to be made on a point-by-point or plant-by-plant basis. For this reason, emphasis was placed on development of temporal allocation factors for area source emissions categories. Independent point source temporal allocation factors were developed only for a subset of all electric power plants.

### U.S. Area Source Factor Development--

The NAPAP Version 5.2 U.S. temporal allocation factors were derived from three sources:

## TABLE 6-1. APPLICATION OF TEMPORAL ALLOCATION FACTORS TO TOTAL HYDROCARBON EMISSIONS FOR U.S. AREA SOURCE CATEGORY 32, MEDIUM DUTY GASOLINE VEHICLES - RURAL ROADS

| | |
|---|---|
| ANNUAL THC EMISSIONS: (TONS/YEAR) | 690,863 |

| SEASON: | WINTER | SPRING | SUMMER | FALL |
|---|---|---|---|---|
| SEASONAL MULTIPLIERS: | 0.216 | 0.239 | 0.289 | 0.256 |
| SEASONAL EMISSIONS TOTAL: (TONS/SEASON) | 149,226 | 165,116 | 199,659 | 176,861 |

| DAY: | WEEKDAY | SATURDAY | SUNDAY | WEEKDAY | SATURDAY | SUNDAY | WEEKDAY | SATURDAY | SUNDAY | WEEKDAY | SATURDAY | SUNDAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAILY MULTIPLIERS: | 0.0115 | 0.0104 | 0.0089 | 0.0111 | 0.0111 | 0.0100 | 0.0110 | 0.0113 | 0.0105 | 0.0111 | 0.0111 | 0.0097 |
| DAILY EMISSIONS TOTAL: (TONS/DAY) | 1,716 | 1,552 | 1,328 | 1,833 | 1,833 | 1,651 | 2,196 | 2,256 | 2,096 | 1,963 | 1,963 | 1,716 |

HOURLY ALLOCATION (SHOWN: SUMMER ONLY)
(TONS/HOUR)

| | SUMMER WEEKDAY | | SUMMER SATURDAY | | SUMMER SUNDAY | |
|---|---|---|---|---|---|---|
| HOUR | HOURLY MULTIPLIER | HOURLY EMISSIONS | HOURLY MULTIPLIER | HOURLY EMISSIONS | HOURLY MULTIPLIER | HOURLY EMISSIONS |
| MNT - 1AM | 0.014 | 31 | 0.022 | 50 | 0.025 | 52 |
| 1AM - 2AM | 0.010 | 22 | 0.016 | 36 | 0.019 | 40 |
| 2AM - 3AM | 0.009 | 20 | 0.012 | 27 | 0.014 | 29 |
| 3AM - 4AM | 0.009 | 20 | 0.010 | 23 | 0.011 | 23 |
| 4AM - 5AM | 0.011 | 24 | 0.009 | 20 | 0.010 | 21 |
| 5AM - 6AM | 0.019 | 42 | 0.013 | 29 | 0.012 | 25 |
| 6AM - 7AM | 0.041 | 90 | 0.021 | 47 | 0.017 | 36 |
| 7AM - 8AM | 0.056 | 123 | 0.031 | 70 | 0.022 | 46 |
| 8AM - 9AM | 0.051 | 112 | 0.042 | 95 | 0.031 | 65 |
| 9AM - 10AM | 0.052 | 114 | 0.055 | 124 | 0.044 | 92 |
| 10AM - 11AM | 0.056 | 123 | 0.065 | 147 | 0.054 | 113 |
| 11AM - NOON | 0.057 | 125 | 0.069 | 156 | 0.062 | 130 |
| NOON - 1PM | 0.056 | 123 | 0.067 | 151 | 0.068 | 143 |
| 1PM - 2PM | 0.057 | 125 | 0.065 | 147 | 0.068 | 143 |
| 2PM - 3PM | 0.060 | 132 | 0.064 | 144 | 0.069 | 145 |
| 3PM - 4PM | 0.066 | 145 | 0.063 | 142 | 0.069 | 145 |
| 4PM - 5PM | 0.073 | 160 | 0.062 | 140 | 0.070 | 147 |
| 5PM - 6PM | 0.071 | 156 | 0.059 | 133 | 0.069 | 145 |
| 6PM - 7PM | 0.059 | 130 | 0.057 | 129 | 0.065 | 136 |
| 7PM - 8PM | 0.049 | 108 | 0.052 | 117 | 0.058 | 122 |
| 8PM - 9PM | 0.040 | 88 | 0.045 | 102 | 0.050 | 105 |
| 9PM - 10PM | 0.035 | 77 | 0.040 | 90 | 0.042 | 88 |
| 10PM - 11PM | 0.028 | 61 | 0.034 | 77 | 0.031 | 65 |
| 11PM - MNT | 0.021 | 46 | 0.029 | 65 | 0.023 | 48 |

1. the NECRMP inventory effort (Sellars, et al. 1982d);
2. the NAPAP Version 4.2 inventory effort (Sellars, et al. 1985); and
3. new research.

The first step in completion of the NAPAP Version 5.2 factors was a review of each set of factors created for the earlier NECRMP and NAPAP Version 4.2 inventories. Based on this review, a decision was made to take one of three actions:

1. Accept the NECRMP/NAPAP Version 4.2 factors without modification.
2. Review the data sources used to compile the NECRMP/NAPAP Version 4.2 factors. If it was determined that the most accurate available data had been used, the factors were accepted without modification. If more accurate or more recently available data promised to make possible an improvement in the factors, new research was conducted and new factors developed.
3. Develop new factors from scratch. For a few categories where either (a) NECRMP/NAPAP Version 4.2 factors had been based on engineering judgment, or (b) the importance of the emission category warranted the effort, new factors were developed after only a cursory review of the NECRMP/NAPAP Version 4.2 factors.

Sixteen area source emissions categories in the NAPAP Version 5.0 Inventory were not present in the earlier inventories. Eight of these categories represented minor variations of an existing category (e.g., a different fuel), and existing factors could be reviewed and utilized as appropriate. New factors were developed for the remaining newly added categories.

Table 6-2 summarizes the actions taken to produce the NAPAP Version 5.2 temporal allocation factors. The table lists each emission category and notes whether factors had been developed for earlier inventory efforts. The action taken to produce the NAPAP Version 5.0 factors is listed in the right hand column.

Table 6-2 also lists the resolution of each set of temporal allocation factors. The factors for a given area source category apply either to a single state, a group of states, or to the entire nation. The level of resolution for each category was determined by:

1. Importance of the category in terms of emissions. Raw data were scanned; categories which contributed little to national emissions totals were generally given national resolution;
2. Data availability. State- or region-specific factors could not be developed where data were not available to support this resolution.

## TABLE 6-2. TEMPORAL ALLOCATION FACTOR DEVELOPMENT FOR NAPAP VERSION 5.2 EMISSIONS CATEGORIES

| CATEGORY NUMBER 'NEW' | 'OLD' | EMISSIONS CATEGORY | FACTORS PRESENT IN NECRMP OR NAPAP V. 4 INVENTORY | ACTION TAKEN FOR NAPAP V. 5 INVENTORY | RESOLUTION |
|---|---|---|---|---|---|
| 1 | 1 | Residential Fuel -- Anthracite Coal | YES | REVIEW, USE NAPAP V.4 | STATE |
| 2 | 2 | Residential Fuel -- Bituminous Coal | YES | REVIEW, USE NAPAP V.4 | STATE |
| 3 | | Residential Fuel -- Distillate Oil | NO | USE CAT. 4 FACTORS | STATE |
| 4 | 3 | Residential Fuel -- Residual Oil | YES | REVIEW, USE NAPAP V.4 | STATE |
| 5 | 4 | Residential Fuel -- Natural Gas | YES | REVIEW, USE NAPAP V.4 | STATE |
| 6 | 5 | Residential Fuel -- Wood | YES | REVIEW, USE NAPAP V.4 | STATE |
| 7 | 6 | Commercial/Institutional Fuel -- Anthracite Coal | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 8 | 7 | Commercial/Institutional Fuel -- Bituminous Coal | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 9 | 8 | Commercial/Institutional Fuel -- Distillate Oil | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 10 | 9 | Commercial/Institutional Fuel -- Residual Oil | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 11 | 10 | Commercial/Institutional Fuel -- Natural Gas | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 12 | 11 | Commercial/Institutional Fuel -- Wood | YES | REVIEW, USE NAPAP V.4 | STATE (NECRMP STATES), NATIONAL (OTHER) |
| 13 | 12 | Industrial Fuel -- Anthracite Coal | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 14 | 13 | Industrial Fuel -- Bituminous Coal | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 15 | | Industrial Fuel -- Coke | NO | USE CAT. 14 FACTORS | NATIONAL |
| 16 | 14 | Industrial Fuel -- Distillate Oil | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 17 | 15 | Industrial Fuel -- Residual Oil | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 18 | 16 | Industrial Fuel -- Natural Gas | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 19 | 17 | Industrial Fuel -- Wood | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 20 | | Industrial Fuel -- Industrial Process Gas | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 21 | 18 | Incineration -- Residential | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 22 | 19 | Incineration -- Industrial | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 23 | 20 | Incineration -- Commercial/Institutional | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 24 | 21 | Open Burning -- Residential | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 25 | 22 | Open Burning -- Industrial | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 26 | 23 | Open Burning -- Commerical/Institutional | | REVIEW, USE NAPAP V.4 | NATIONAL |
| 27 | | Light Duty Gas Vehicles -- Limited Access | NO | DEVELOP NEW FACTORS | NATIONAL |
| 28 | 24 | Light Duty Gas Vehicles -- Rural | YES | DEVELOP NEW FACTORS | NATIONAL |
| 29 | | Light Duty Gas Vehicles -- Suburban | NO | DEVELOP NEW FACTORS | NATIONAL |
| 30 | 25 | Light Duty Gas Vehicles -- Urban | YES | DEVELOP NEW FACTORS | NATIONAL |
| 31 | | Medium Duty Gas Vehicles -- Limited Access | NO | DEVELOP NEW FACTORS | NATIONAL |

TABLE 6-2 (continued)

| CATEGORY NUMBER 'NEW' | 'OLD' | EMISSIONS CATEGORY | FACTORS PRESENT IN NECRMP OR NAPAP V. 4 INVENTORY | ACTION TAKEN FOR NAPAP V. 5 INVENTORY | RESOLUTION |
|---|---|---|---|---|---|
| 32 | 26 | Medium Duty Gas Vehicles -- Rural | YES | DEVELOP NEW FACTORS | NATIONAL |
| 33 | | Medium Duty Gas Vehicles -- Suburban | NO | DEVELOP NEW FACTORS | NATIONAL |
| 34 | 27 | Medium Duty Gas Vehicles -- Urban | YES | DEVELOP NEW FACTORS | NATIONAL |
| 35 | | Heavy Duty Gas Vehicles -- Limited Access | NO | USE CAT. 36 FACTORS | NATIONAL |
| 36 | 28 | Heavy Duty Gas Vehicles -- Rural | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 37 | | Heavy Duty Gas Vehicles -- Suburban | NO | USE CAT. 38 FACTORS | NATIONAL |
| 38 | 29 | Heavy Duty Gas Vehicles -- Urban | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 39 | 30 | Off-Highway Gas Vehicles | YES | REVIEW, USE NAPAP V.4 | STATE |
| 40 | | Heavy Duty Diesel Vehicles -- Limited Access | NO | USE CAT. 41 FACTORS | NATIONAL |
| 41 | 31 | Heavy Duty Diesel Vehicles -- Rural | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 42 | | Heavy Duty Diesel Vehicles -- Suburban | NO | USE CAT. 43 FACTORS | NATIONAL |
| 43 | 32 | Heavy Duty Diesel Vehicles -- Urban | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 44 | 33 | Off-Highway Diesel Vehicles | YES | REVIEW, USE NAPAP V.4 | STATE |
| 45 | 34 | Railroad Locomotives | YES | Q.A. ONLY | REGION |
| 46 | 35 | Aircraft -- Military | YES | Q.A. ONLY | NATIONAL |
| 47 | 36 | Aircraft -- Civil | YES | Q.A. ONLY | NATIONAL |
| 48 | 37 | Aircraft -- Commercial | YES | Q.A. ONLY | NATIONAL |
| 49 | | Vessels -- Coal-Powered | NO | USE CAT. 50 FACTORS | NATIONAL |
| 50 | 38 | Vessels -- Diesel | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 51 | 39 | Vessels -- Residual Oil | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 52 | 40 | Vessels -- Gasoline | YES | REVIEW, USE NAPAP V.4 | STATE |
| 53 | 41 | BLANK (formerly Solvents Purchased) | | | |
| 54 | 42 | Gasoline Marketed | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 55 | | Unpaved Roads | NO | DEVELOP NEW FACTORS | NATIONAL |
| 56 | | Unpaved Airport LTO's (NO EMISSIONS DATA) | | | |
| 57 | | Construction Sites (NO EMISSIONS DATA) | | | |
| 58 | | Miscellaneous Wind Erosion (NO EMISSIONS DATA) | | | |
| 59 | | Agricultural Tilling (NO EMISSIONS DATA) | | | |
| 60 | 43 | Forest Fires | YES | REVIEW, USE NAPAP V.4 | NATIONAL |
| 61 | 44 | Managed Burning | YES | Q.A. ONLY | NATIONAL |
| 62 | 45 | Agricultural Field Burning | YES | Q.A. ONLY | NATIONAL |

TABLE 6-2 (continued)

| CATEGORY NUMBER 'NEW' | 'OLD' | EMISSIONS CATEGORY | FACTORS PRESENT IN NECRMP OR NAPAP V. 4 INVENTORY | ACTION TAKEN FOR NAPAP V. 5 INVENTORY | RESOLUTION |
|---|---|---|---|---|---|
| 63 | | Orchard Heaters (NO EMISSIONS DATA) | | | |
| 64 | 46 | Structural Fires | YES | Q.A. ONLY | NATIONAL |
| 65 | | (UNFILLED) | | | |
| 66 | | (UNFILLED) | | | |
| 67 | | (UNFILLED) | | | |
| 68 | | (UNFILLED) | | | |
| 69 | | (UNFILLED) | | | |
| 70 | | (UNFILLED) | | | |
| 71 | 47 | Manure Field Application -- Beef Cattle | YES | DEVELOP NEW FACTORS | REGION |
| 72 | 48 | Manure Field Application -- Dairy Cows | YES | DEVELOP NEW FACTORS | REGION |
| 73 | 49 | Manure Field Application -- Hogs and Pigs | YES | DEVELOP NEW FACTORS | REGION |
| 74 | 50 | Manure Field Application -- Broilers | YES | DEVELOP NEW FACTORS | NATIONAL |
| 75 | 51 | Manure Field Application -- Other Chickens | YES | DEVELOP NEW FACTORS | NATIONAL |
| 76 | 52 | Anhydrous NH3 Fertilizer Application | YES | DEVELOP NEW FACTORS | REGION |
| 77 | 53 | Beef Cattle Feed Lots | YES | Q.A. ONLY | NATIONAL |
| 78 | | Degreasing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 79 | | Drycleaning | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 80 | | Graphic Arts | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 81 | | Rubber and Plastic Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 82 | | Architectural Coating | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 83 | | Auto Body Repair | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 84 | | Motor Vehicle Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 85 | | Paper Coating | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 86 | | Fabricated Metals | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 87 | | Machinery Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 88 | | Furniture Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 89 | | Flat Wood Products | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 90 | | Other Transportation Equipment Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 91 | | Electrical Equipment Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 92 | | Ship Building and Repair | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 93 | | Miscellaneous Industrial Manufacturing | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |

## TABLE 6-2 (continued)

| CATEGORY NUMBER 'NEW' | 'OLD' | EMISSIONS CATEGORY | FACTORS PRESENT IN NECRMP OR NAPAP V. 4 INVENTORY | ACTION TAKEN FOR NAPAP V. 5 INVENTORY | RESOLUTION |
|---|---|---|---|---|---|
| 94 | | Miscellaneous Industrial Solvent Use | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 95 | | Miscellaneous Non-Industrial Solvent Use | YES (NECRMP only) | NEW SEASONAL, DAILY FACTORS | NATIONAL |
| 96 | | Utility Area Sources -- Coal Fired Plants | NO | DEVELOP NEW FACTORS | NATIONAL |
| 97 | | Utility Area Sources -- Oil Fired Plants | NO | DEVELOP NEW FACTORS | NATIONAL |
| 98 | | Utility Area Sources -- Natural Gas Fired Plants | NO | DEVELOP NEW FACTORS | NATIONAL |
| 99 | 54 | Minor Point Sources | YES | Q.A. ONLY | NATIONAL |

1 - NECRMP STATES: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia.

A description of the development of the area source temporal allocation factors for each category or set of categories follows.

Residential Fuel Combustion (Categories 1-6)--Monthly average heating degree days for a representative meteorological recording station from each state were obtained from *State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population* (U.S. Department of Commerce, 1983); from these data, the seasonal temporal factors for each state were developed. The hourly variations in residential fuel use were developed with data from NOAA (U.S. Department of Commerce, 1980). Monthly averages of the 3-hour meteorological records were obtained for each meteorological station to determine these diurnal patterns. For each month, the average temperature was subtracted from 18.7°C (the value used to calculate degree days). Negative values (indicating temperatures above 18.7°C) were set to zero. The resulting eight values were proportional to the variation in diurnal heating for a selected station for a month. Months were then averaged to obtain seasonally adjusted diurnal factors for each state.

Commercial/Institutional Fuel Use (Categories 7-12)--Seasonal, daily, and hourly fuel use patterns for these categories were developed from the EPA Guidelines (U.S. EPA, 1979b). For the NECRMP study area, daily and hourly patterns were developed from data collected for the Philadelphia AQCR Inventory (Engineering-Science, 1981).

Industrial Fuel Use (Categories 13-20)--National seasonal patterns were developed from the EPA Guidelines (U.S. EPA, 1979b), in which a uniform distribution is recommended. The daily pattern was based on U.S. Bureau of Labor statistics on average overtime at manufacturing facilities (U.S. Department of Labor, 1981). The assumption was made that all overtime hours were worked on weekends, and that three times as much overtime was put in on Saturdays as on Sundays. The daily patterns developed from these data indicate that approximately 93 percent of emissions occur on weekdays, 5 percent of Saturdays, and 2 percent on Sundays. This distribution varied slightly depending on the season. The hourly pattern was developed during the Philadelphia AQCR inventory effort (Engineering-Science, 1981). In the Philadelphia study, 50 percent of industrial coal and oil fuel use emissions were allocated uniformly from 7 a.m. to 4 p.m., to reflect greater production during business hours. The remaining 50 percent of emissions were uniformly allocated to the remaining hours in a day. This pattern was applied nationwide to all industrial fuel use categories in the NAPAP inventory.

Onsite Incineration and Open Burning (Categories 21-26)--Seasonal, daily, and hourly patterns were developed from existing inventories (Klemm and Brennan, 1981; U.S. EPA, 1979a; New Jersey Department of Environmental Protection, 1980; New York Department of Environmental Conservation, 1980; U.S. EPA, 1980).

Highway Vehicles, Light and Medium Duty (Categories 27-34)--The U.S. Department of Transportation (USDOT) collects Continuous Traffic Count (CTC) data from all 50 states, and uses a subset of these data representing 13 states as a basis for estimating national traffic patterns. These 13 states' data allow hourly temporal allocation factors to be derived for each day of the week in each month of the year for six roadway types. This data set was obtained and analyzed to yield seasonal, daily, and hourly temporal allocation factors for light and medium duty vehicles (Welty, personal communication).

Highway Vehicles, Heavy Duty (Categories 35-38, 40-43)--These eight categories represent gas and diesel heavy duty vehicles on limited access, urban, suburban, and rural roads. The NECRMP uniform seasonal pattern was used for NAPAP Version 5.2 after its applicability was confirmed by the U.S. Trucking Association (Roth, personal communication).

Off-Highway Vehicles (Categories 39, 44)--State-specific seasonal emission patterns were derived from data contained in Highway Statistics (U.S. DOT, 1980). Monthly distribution of off-highway motor fuel use was calculated by subtracting monthly on-highway fuel use from total monthly fuel use. Seasonal allocation factors were then derived from the monthly pattern.

Daily patterns were derived from the EPA Guidelines (U.S. EPA, 1979b), and are a composite (weighted by emission strength) of the daily patterns for the five subcategories of off-highway vehicles (agricultural equipment, construction equipment, industrial equipment, lawn and garden equipment, and motorcycles) for which factors are separately described in the Guidelines.

Separate hourly patterns were derived for gasoline (Category 39) and diesel (Category 44) vehicles using data from a variety of sources, including the EPA Guidelines (U.S. EPA, 1979b), the Regional Air Pollution Study: Off-Highway Mobile Sources Emission Inventory (U.S. EPA, 1977), Highway Statistics, 1980 (U.S. Department of Transportation, 1980) and several statewide area source emission inventories (Sellars, et al., 1982a, 1982b, 1982c; Haupt, et al., 1982).

Railroads (Category 45)--The temporal factors developed for railroad locomotives in the NECRMP study were based on information provided by Conrail and in the Philadelphia AQCR inventory (Engineering-Science, 1981). These data are probably not representative of the entire nation. Thus, the NECRMP-developed temporal profile for railroads was used only for those states within the NECRMP study area; new seasonal, daily, and hourly patterns, developed from factors in the EPA Guidelines (U.S. EPA, 1979b), were used for the remaining states in the NAPAP inventory.

Aircraft (Categories 46-48)--For civil aircraft, seasonal, daily, and hourly patterns were derived from the EPA Guidelines (U.S. EPA, 1979b). For military aircraft, patterns were derived from the Philadelphia AQCR Inventory (Engineering-Science, 1981). For commercial aircraft, patterns were derived from data presented in Seasonally Adjusted Traffic and Capacity (U.S. Civil Aeronautics Board, 1981).

Vessels (Categories 49-52)--Patterns for coal (Category 49), diesel (Category 50), and residual oil (Category 51) powered vessels were developed from the EPA Guidelines (U.S. EPA, 1979b). For gasoline powered vessels (dominated by pleasure boats), the Guidelines recommend that seasonal patterns be based on the number of months the mean temperature exceeds 45°F; State, Regional, and National Monthly and Annual Average Temperatures Weighted by Area (U.S. Department of Commerce, 1983) provided this information, and seasonal patterns were created as recommended. Daily and hourly patterns were developed from the Guidelines.

Gasoline Marketed (Category 54)--The primary sources of information for seasonal patterns were the U.S. Department of Energy's (DOE's) Petroleum Marketing Monthly (U.S. Department of Energy, 1984) and the U.S. Department of Transportation's (DOT's) Highway Statistics, 1980 (U.S. Department of Transportation, 1980). Analyses of these data yielded the conclusion that evidence was insufficient to justify using other than a uniform seasonal distribution. Daily and hourly patterns were based on the EPA Guidelines (U.S. EPA, 1979b).

Unpaved Roads (Category 55)--The seasonal, daily, and hourly patterns for this category were assigned those for Light Duty Vehicles on rural roads (Category 28).

Agricultural, Structural, and Forest Fires (Categories 60, 61, 62, 64)--Managed burning (Category 61) and agricultural field burning (Category 62) used the patterns developed for field/slash burning in the NECRMP study (Sellars, et al., 1982d). Structural fires (Category 64) and forest fires (Category 60) were assumed to occur randomly, 7 days per week, 24 hours per day. Structural fires were assumed to occur uniformly throughout the year. It was estimated that 90 percent of forest fires occur during summer or fall, and that the remaining 10 percent are split evenly between winter and spring.

Manure Field Application (Categories 71-75)--Agricultural Extension Agents in 12 states across the country (Indiana, Wisconsin, Nebraska, Kansas, North Dakota, Idaho, Iowa, North Carolina, Alabama, New York, Texas and Arkansas) were contacted; they provided information on the seasonal pattern of manure application in their states. These patterns were extended to nearby states not contacted directly. Daily patterns were governed by the assumption that most farm activity takes place on weekdays and Saturdays; hourly patterns assume this activity takes place during daylight hours.

$NH_3$ Fertilizer Application (Category 76)--The 12 Agricultural Extension Agents contacted to provide information on manure spreading practices (see above) were also asked to share their knowledge of $NH_3$ fertilization practices. Daily and hourly factors were assigned under the same assumptions which governed the selection of factors for the manure spreading categories (see above).

Beef Cattle Feed Lots (Category 77)--Emissions were assumed to be uniform throughout the year and the week.

Solvent Use Categories (Categories 78-95)--U.S. Department of Labor statistics on 1980 working hours (U.S. Department of Labor, 1981) were consulted to derive seasonal and daily temporal variation in these emission categories. These data were broken down by SIC code; the NAPAP emission categories were matched with the most appropriate code in the data set. Monthly data on total hours worked served as the basis for seasonal allocation factors. Data on overtime hours worked served as the basis for daily factors; the assumption was made that all overtime hours were worked on weekends, and that three times as much overtime was put in on Saturdays as on Sundays.

Utility Point Source Emissions (Categories 96-98)--The seasonal factors were based on electric generation data contained in the EPRI Regional Systems (EPRI, 1981). Daily factors are governed by the assumption that utility activity is constant during the week; hourly factors assume that most activity around these plants occurs during normal working hours.

Minor Point Sources (Category 99)--The temporal variation for this minor emissions category assumes an operating "schedule" of 52 weeks per year, 5 days per week, and 8 hours per day.

Summary--Appendix C contains figures which highlight the seasonal, daily, and hourly temporal allocation patterns for the United States area source emission categories. Categories for which temporal allocation factors were resolved by state are represented only by the mean pattern for all states.

Canadian Area Source Temporal Allocation Factors--

The Canadian area source temporal allocation factors were developed under the auspices of Supply and Services Canada by the MEP company of Markham, Ontario, and the Ontario Research Foundation of Mississauga, Ontario; they were adopted without substantial changes for incorporation into the NAPAP Inventory effort. The Canadian factors were developed through the same sort of research which went into development of the U.S. factors. Business and government statistics and meteorological and climatological data formed the raw input into development of the factors. Where the data made such resolution possible, factors were developed at the individual province level. Where emissions for a category are climate-dependent, an attempt was made to refine province-level factors further by 4 degree zone of latitude. Where appropriate and possible, separate factors were developed for different pollutant species within a single emissions category (this resolution applied only to factors for automobile emissions).

The Canadian temporal allocation factors were provided to NAPAP in a written report (MEP/Ontario Research Foundation, 1985). The factors were extracted from this report and reformatted by a procedure described below. The FREDS handling of the Canadian emissions data did not allow use of either (a) the latitude-zone-specific factors, or (b) the species-specific factors. Where appropriate, the mean of the latitude-zone-specific factors was calculated and used to represent an entire province; where species-specific factors had been calculated, the factors for a pollutant for which emissions vary directly with temperature were used for the emissions category.

Table 6-3 summarizes the Canadian area source emission categories and the level of resolution of the associated temporal allocation factors.

U.S. Point Source Temporal Allocation Factors--

State- and fuel-specific temporal allocation factors were developed only for a subset of all electric generating emissions sources. For the remaining point sources in the NAPAP Version 5.0 Inventory, operating rate data contained in the emissions records themselves formed the basis for the temporal allocation of emissions.

## TABLE 6-3. CANADIAN AREA SOURCE CATEGORIES AND TEMPORAL FACTOR LEVEL OF SPECIFICITY

| CATEGORY NUMBER | BASE CATEGORY | SUB-CATEGORY | LEVEL |
|---|---|---|---|
| 10101 | GASOLINE POWERED MOTOR VEH. | LIGHT DUTY TRUCKS | PROVINCE |
| 10102 | GASOLINE POWERED MOTOR VEH. | HEAVY DUTY TRUCKS | PROVINCE |
| 10103 | GASOLINE POWERED MOTOR VEH. | MEDIUM DUTY VEHICLES | PROVINCE |
| 10104 | GASOLINE POWERED MOTOR VEH. | AUTOMOBILES | PROVINCE |
| 10105 | GASOLINE POWERED MOTOR VEH. | MOTORCYCLES | NATIONAL |
| 10106 | GASOLINE POWERED MOTOR VEH. | SNOWMOBILES | NATIONAL |
| 10201 | OFF-HIGHWAY MOBILE SOURCES | HELICOPTERS | PROVINCE |
| 10202 | OFF-HIGHWAY MOBILE SOURCES | HELICOPTER FLIGHTS | |
| 10203 | OFF-HIGHWAY MOBILE SOURCES | JET AIRCRAFT | |
| 10204 | OFF-HIGHWAY MOBILE SOURCES | JET AIRCRAFT FLIGHT | |
| 10206 | OFF-HIGHWAY MOBILE SOURCES | LOCAL AIRCRAFT FLIGHT | |
| 10207 | OFF-HIGHWAY MOBILE SOURCES | PISTON ENGINE AIRCRAFT | |
| 10208 | OFF-HIGHWAY MOBILE SOURCES | PISTON ENGINE INFLIGHT | |
| 10210 | OFF-HIGHWAY MOBILE SOURCES | PISTON TRANSPORT INFLIGHT | |
| 10211 | OFF-HIGHWAY MOBILE SOURCES | SMALL PISTON AIRCRAFT | |
| 10213 | OFF-HIGHWAY MOBILE SOURCES | TURBOPROP AIRCRAFT | |
| 10214 | OFF-HIGHWAY MOBILE SOURCES | DIESEL OIL -- RAILROADS | PROVINCE |
| 10215 | OFF-HIGHWAY MOBILE SOURCES | GASOLINE OUTBOARD MOTORS | PROVINCE |
| 10217 | OFF-HIGHWAY MOBILE SOURCES | MOTORSHIPS DOCKSIDE | |
| 10218 | OFF-HIGHWAY MOBILE SOURCES | MOTORSHIPS UNDERWAY | |
| 10220 | OFF-HIGHWAY MOBILE SOURCES | STEAMSHIPS DOCKSIDE | |
| 10221 | OFF-HIGHWAY MOBILE SOURCES | STEAMSHIPS UNDERWAY | |
| 10301 | NON-HIGHWAY USE OF GASOLINE | | PROVINCE |
| 10501 | FOREST FIRES | | PROVINCE |
| 10601 | SLASH BURNING | | NATIONAL |
| 10701 | STRUCTURAL FIRES | | PROVINCE |
| 10801 | FERTILIZER APPLICATION | | PROVINCE |
| 11201 | DRY CLEANING | | NATIONAL |
| 11301 | SAND AND GRAVEL PROCESSING | | NATIONAL |
| 11401 | COAL INDUSTRY | COAL HANDLING | NATIONAL |
| 11402 | COAL INDUSTRY | COAL MINING | |
| 11403 | COAL INDUSTRY | OVERBURDEN REMOVAL | |
| 11404 | COAL INDUSTRY | COAL TRANSPORTATION | |
| 11501 | WOOD INDUSTRY | SAWMILL PRODUCTION | PROVINCE |
| 11502 | WOOD INDUSTRY | PLYWOOD AND VENEER PROD. | PROVINCE |
| 11503 | WOOD INDUSTRY | HARDWOOD PRODUCTION | PROVINCE |
| 11504 | WOOD INDUSTRY | PULPBOARD PRODUCTION | NATIONAL |
| 11702 | FUEL COMB. -- STATIONARY SRCS. | ELEC PWR -- DISTILLATE OIL | PROVINCE |
| 11703 | FUEL COMB. -- STATIONARY SRCS. | ELEC PWR -- DIESEL TURBINES | |
| 11704 | FUEL COMB. -- STATIONARY SRCS. | ELEC PWR -- HEAVY OIL | |
| 11705 | FUEL COMB. -- STATIONARY SRCS. | ELEC PWR -- MISC DIESEL | |
| 11706 | FUEL COMB. -- STATIONARY SRCS. | ELEC PWR -- NATURAL GAS | |
| 11711 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL COAL | PROVINCE |
| 11712 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL DISTILLATE OIL | |
| 11713 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL KEROSENE | |
| 11714 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL LIQ. PETROLEUM | |
| 11715 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL NATURAL GAS | |
| 11716 | FUEL COMB. -- STATIONARY SRCS. | RESIDENTIAL RESIDUAL OIL | |
| 11721 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST COAL | PROVINCE |
| 11722 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST DISTILLATE OIL | |
| 11723 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST KEROSENE | |
| 11724 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST LIQ. PETROLEUM | |
| 11725 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST NATURAL GAS | |

TABLE 6-3 (continued)

| CATEGORY NUMBER | BASE CATEGORY | SUB-CATEGORY | LEVEL |
|---|---|---|---|
| 11725 | FUEL COMB. -- STATIONARY SRCS. | COMM/INST RESIDUAL OIL | PROVINCE |
| 11731 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL COAL | |
| 11732 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL DISTILLATE OIL | |
| 11733 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL KEROSENE | |
| 11734 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL LIQUID PETROLEUM | |
| 11735 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL NATURAL GAS | |
| 11736 | FUEL COMB. -- STATIONARY SRCS. | INDUSTRIAL RESIDUAL OIL | |
| 11740 | FUEL COMB. -- STATIONARY SRCS. | FUELWOOD COMBUSTION | PROVINCE |
| 11801 | BAKERIES | | PROVINCE |
| 12001 | ASPHALT PRODUCTION | ASPHALT DRYING | PROVINCE |
| 12002 | ASHPALT PRODUCTION | ASPHALT FUGITIVES | |
| 12101 | STONE PROCESSING | CRUSHED STONE -- PRIMARY | PROVINCE |
| 12102 | STONE PROCESSING | CRSH STN -- SCREEN, CONVEY | |
| 12103 | STONE PROCESSING | CRSH STN -- SECONDARY | |
| 12104 | STONE PROCESSING | CRSH STN -- SECONDARY | |
| 12111 | STONE PROCESSING | PULV STONE -- PRIMARY | |
| 12112 | STONE PROCESSING | PULV STN -- RECRUSH, SCREEN | |
| 12113 | STONE PROCESSING | PULV STN -- SCREEN, CONVEY | |
| 12114 | STONE PROCESSING | PULV STN -- SECONDARY | |
| 12115 | STONE PROCESSING | PULV STN -- SECONDARY, FINAL | |
| 12116 | STONE PROCESSING | PULV STN -- FINES | |
| 12117 | STONE PROCESSING | PULV STN -- STORAGE PILES | |
| 12121 | STONE PROCESSING | BUILDING STONE | |
| 12501 | CLAY PRODUCTS MANUFACTURE | DRYING, GRINDING | NATIONAL |
| 12502 | CLAY PRODUCTS MANUFACTURE | STORAGE | |
| 12601 | GRAIN HANDLING AND MILLING | TERM ELEV -- CLEANING | PROVINCE |
| 12602 | GRAIN HANDLING AND MILLING | TERM ELEV -- DRYING | |
| 12603 | GRAIN HANDLING AND MILLING | TERM ELEV -- HEADHOUSE | |
| 12604 | GRAIN HANDLING AND MILLING | TERM ELEV -- SHIP, RECEIVE | |
| 12605 | GRAIN HANDLING AND MILLING | TERM ELEV -- TRANSFER | |
| 12606 | GRAIN HANDLING AND MILLING | TERM ELEV -- TRIPPER | |
| 12613 | GRAIN HANDLING AND MILLING | PRIM ELEV -- HEADHOUSE | |
| 12614 | GRAIN HANDLING AND MILLING | PRIM ELEV -- SHIP, RECEIVE | |
| 12615 | GRAIN HANDLING AND MILLING | PRIM ELEV -- TRANSFER | |
| 12623 | GRAIN HANDLING AND MILLING | XFER ELEV -- HEADHOUSE | |
| 12624 | GRAIN HANDLING AND MILLING | XFER ELEV -- SHIP, RECEIVE | |
| 12625 | GRAIN HANDLING AND MILLING | XFER ELEV -- TRANSFER | |
| 12626 | GRAIN HANDLING AND MILLING | XFER ELEV -- TRIPPER | |
| 12641 | GRAIN HANDLING AND MILLING | PROC ELEV -- CLEANING | NATIONAL |
| 12642 | GRAIN HANDLING AND MILLING | PROC ELEV -- MILLHOUSE | |
| 12643 | GRAIN HANDLING AND MILLING | PROC ELEV -- PRECLEAN | |
| 12644 | GRAIN HANDLING AND MILLING | PROC ELEV -- RECEIVING | |
| 12701 | NATURAL GAS PROCESSING | COMPRESSOR ENGINES | PROVINCE |
| 12702 | NATURAL GAS PROCESSING | COMPRESSOR TURBINES | |
| 12703 | NATURAL GAS PROCESSING | COMPRESSORS IN-PLANT | |
| 12704 | NATURAL GAS PROCESSING | HEATERS, BOILERS IN-PLANT | |
| 12705 | NATURAL GAS PROCESSING | | |
| 12801 | SOLID WASTE INCINERATION | WOOD WASTE DISPOSAL | PROVINCE |
| 12802 | SOLID WASTE INCINERATION | CONTROLLED AIR | NATIONAL |
| 12803 | SOLID WASTE INCINERATION | MULTIPLE CHAMBER | |
| 12901 | DIESEL AND GASOLINE MARKETING | FILLING VEHICLE TANKS | PROVINCE |
| 12902 | DIESEL AND GASOLINE MARKETING | REFINERY STORAGE, TRANSFER | |
| 12903 | DIESEL AND GASOLINE MARKETING | SPILLAGE AT STATION | |

## TABLE 6-3 (continued)

| CATEGORY NUMBER | BASE CATEGORY | SUB-CATEGORY | LEVEL |
|---|---|---|---|
| 12904 | DIESEL AND GASOLINE MARKETING | STATION STORAGE, TRANSFER | PROVINCE |
| 12905 | DIESEL AND GASOLINE MARKETING | TRANSFER TO CARS | |
| 12906 | DIESEL AND GASOLINE MARKETING | VAPOR LOSS AT STATION | |
| 12907 | DIESEL AND GASOLINE MARKETING | DIESEL EVAPORATION | |
| 13001 | SURFACE COATINGS | INDUSTRIAL USE | NATIONAL |
| 13002 | SURFACE COATINGS | TRADE. SALES USE | |
| 13101 | LANDFILL SITES | | PROVINCE |
| 13201 | FERROUS FOUNDRIES | CUPOLA FURNACE | NATIONAL |
| 13202 | FERROUS FOUNDRIES | CUPOLA(+1 REVERB) FURNACE | NATIONAL |
| 13203 | FERROUS FOUNDRIES | ELECTRIC ARC FURNACE | |
| 13204 | FERROUS FOUNDRIES | INDUCTION FURNACE | |
| 13205 | FERROUS FOUNDRIES | ROTARY OIL FURNACE | |
| 13701 | DUST FROM UNPAVED ROADS | TRUCKS. EARTH ROADS | PROVINCE |
| 13702 | DUST FROM UNPAVED ROADS | TRUCKS, TREATED GRAVEL | |
| 13703 | DUST FROM UNPAVED ROADS | TRUCKS, UNTREATED GRAVEL | |
| 13704 | DUST FROM UNPAVED ROADS | VEHICLES, EARTH ROADS | |
| 13705 | DUST FROM UNPAVED ROADS | VEHICLES. TREATED GRAVEL | |
| 13706 | DUST FROM UNPAVED ROADS | VEHICLES. UNTREATED GRAVEL | |
| 13901 | CONCRETE BATCHING | | PROVINCE |
| 13902 | CONCRETE BATCHING | FUGITIVE | |
| 14001 | CIGARETTE SMOKING | | NATIONAL |
| 14101 | CRUDE OIL PRODUCTION | EVAPORATION FROM SHIPS | PROVINCE |
| 14102 | CRUDE OIL PRODUCTION | EVAPORATION | |
| 14201 | MINING AND ROCK QUARRYING | CONCENTRATE DRYERS | PROVINCE |
| 14202 | MINING AND ROCK QUARRYING | CONCENTRATE TRANSPORT | |
| 14203 | MINING AND ROCK QUARRYING | OPEN PIT MINING | |
| 14204 | MINING AND ROCK QUARRYING | OVERBURDEN REMOVAL | |
| 14205 | MINING AND ROCK QUARRYING | UNDERGROUND MINING | |
| 14401 | TIRE WEAR | | PROVINCE |
| 14501 | PESTICIDE APPLICATION | | PROVINCE |
| 14601 | DIESEL-POWERED ENGINES | AGRICULTURAL | PROVINCE |
| 14602 | DIESEL-POWERED ENGINES | CONSTRUCTION | |
| 14603 | DIESEL-POWERED ENGINES | HEAVY DUTY VEHICLES | |
| 14604 | DIESEL-POWERED ENGINES | OTHER INDUSTRIAL ENGINES | |
| 14801 | AGRICULTURE | WIND EROSION OF CROPLAND | PROVINCE |
| 14802 | AGRICULTURE | FUGITIVE TILLING EMIS. | |
| 14901 | TAILING PILES | | NATIONAL |
| 15001 | CONSTRUCTION SITES | BRIDGES, TUNNELS, ROADS | PROVINCE |
| 15002 | CONSTRUCTION SITES | HEAVY CONSTRUCTION | |
| 15003 | CONSTRUCTION SITES | NON-RESIDENTIAL CONSTRUCTION | |
| 15004 | CONSTRUCTION SITES | RESIDENTIAL CONSTRUCTION | |
| 15005 | CONSTRUCTION SITES | WATER, SEWER. UTILITY | |
| 15101 | GENERAL SOLVENT USE | | NATIONAL |
| 15201 | DUST FROM PAVED ROADS | TRUCKS | PROVINCE |
| 15202 | DUST FROM PAVED ROADS | OTHER VEHICLES | |

Temporal Allocation Factors for Utilities--State- and fuel-specific temporal allocation factors were developed during the NECRMP study for power plants within the Northeast Corridor (the region comprised of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, the District of Columbia, and West Virginia). For NAPAP Version 5.2, most of the NECRMP factors were retained for sources inside the NECRMP region, while some were replaced by new factors, derived from additional data. For sources outside the NECRMP region, some factors were based on the original NECRMP figures, while most were developed from additional data. Following is a description of the data sources consulted for the utility point source temporal allocation factors.

Seasonal Factors--The fuel- and state-specific seasonal temporal factors which were derived for the NECRMP study from power generation statistics obtained from the U.S. Department of Energy's (DOE's) 1979 Data Reports were retained for NAPAP Version 5.2 (U.S. Department of Energy, 1979). To avoid the climatic bias of the northeast seasonal statistics, a uniform seasonal temporal factor of 25 percent was assigned to all sources outside the NECRMP region.

Daily Factors--The daily factors developed for the NECRMP study were inadequate for use with the NAPAP Version 5.2 Inventory. Daily factors for the entire nation were developed from weekly load cycle listings in the EPRI Regional Systems (EPRI, 1981). These were calculated by normalizing the averages of daily load statistics.

Hourly Factors--For the NECRMP study, fuel- and state-specific weekday hourly temporal factors were calculated using hourly power plant fuel use data previously collected by GCA for use in the Electric Power Research Institute's (EPRI's) SURE Program (Klemm and Brennan, 1981). Included in this effort was the acquisition of hourly fuel use data for approximately 300 power plants within the SURE region for several study periods, at least one in each season. Since the SURE study area included all of the NECRMP study area, and the power plants contained in the hourly inventory represented approximately 90 percent of the utility $SO_x$ emissions in the SURE region, the SURE data are believed to represent the best available data for determining hourly emission patterns within the Northeast Corridor.

There were no SURE hourly fuel use data available for the states of Rhode Island or Vermont. Weekday factors were assigned from the neighboring states of Connecticut and New Hampshire, respectively. For sources outside the NECRMP region, global fuel-specific hourly factors for weekdays were calculated by taking averages of the NECRMP figures.

Because the temporal resolution of the NECRMP study was limited to hourly emissions on a typical weekday, national Saturday and Sunday allocation factors were developed for NAPAP Version 5.2 from the weekly load cycle listings in the EPRI Regional Systems (EPRI, 1981). These were calculated by normalizing the averages of hourly load statistics.

Point Source Default Temporal Allocation Patterns--Most NAPAP point source emission records contain operating rate data which make possible the point-specific temporal allocation of emissions. These data consist of information on:

1. Seasonal throughput percentages for each of the four seasons;
2. The number of days per week the process operates; and
3. The number of hours per day the process operates.

For all SCC for which specific temporal allocation factors were not developed, these operating rate data were used to divide yearly emission totals into subtotals for the 24 hours of a typical weekday, Saturday, and Sunday in each of the four seasons. The algorithms used to allocate yearly emissions were as follows:

Seasonal Patterns--The operating rate data contains specific information on the percent of yearly emissions attributable to each of the four seasons.

Daily Patterns--The operating rate data provide information on the number of days per week the process is in operation. This information is used to allocate emissions among the days of the week according to the following schedule:

| If the process operates x days per week: | Then emissions are allocated as follows: |
|---|---|
| 1 | Saturdays only |
| 2 | Equally on Saturdays and Sundays |
| 3-5 | Weekdays only |
| 6 | Equally on weekdays and Saturdays |
| 7 | Equally on all days of the week. |

Hourly Patterns--The operating rate data state how many hours per day the process is in operation. Since this information does not allow precise diurnal patterns to be defined, hourly patterns were created according to the following simple algorithm:

- If the process operates $\geq 17$ hours/day, the hourly allocation pattern divides emissions equally among the 24 hours of the day;
- If the process operates 1 through 17 hours/day, hourly allocation factors are made 0 for the hours from midnight to 7 A.M. Total daily emissions are divided evenly among the following x hours, where x = the number of hours the process operates (for example, if

the process operates 8 hours/day, the 8 hourly factors from 7 A.M. through 3 P.M. would all equal 0.125). The remaining hourly factors (filling out the 24 hours of the day) are all set equal to zero.

Canadian Point Source Temporal Allocation Factors--
Temporal allocation factors for Canadian point sources have not been developed by NAPAP, and the emissions records for Canadian point sources do not contain operating rate data. As a result of this lack of temporal profiles and operating rate data, most Canadian point sources have been assigned a default operating pattern which assumes: (1) equal emissions in all seasons, (2) equal emissions for all days of the week, and (3) constant emissions throughout the 24 hours of each day. Canadian point source utility emissions, however, were allocated using the appropriate U.S. point source utility temporal allocation factors, whose development is described above.

### File Creation and Quality Assurance

Extensive effort was put into the task of creating the temporal allocation factor files and into assuring the quality of these data. A variety of data entry, data modification, and quality assurance software was written which will speed the process of incorporating further improvements to the temporal allocation factors for future NAPAP Inventory efforts.

The U.S. temporal allocation factors were put into FREDS format in one of two ways:

- Factors which were adapted from earlier inventory efforts, and which therefore already existed in computer data files, were reformatted to the required input format; and

- Factors which were the product of new research conducted for this NAPAP effort were put into data files through a system of data entry programs designed for this effort.

The Canadian factors were not supplied on a magnetic medium, but were extracted from a written report. The data entry programs written to accept the U.S. temporal allocation factors were modified slightly to allow straightforward creation of data files for the Canadian factors.

The temporal allocation factors were put through a series of quality assurance checks before further processing:

- Files were scanned following data reformatting or transferring to insure that no errors were made during transcription. All data entry and data manipulation software was checked to be sure that all factors summed to the correct values;

- Printouts similar to those presented in Appendix C were created and visually scanned to be sure that all temporal allocation factor patterns were reasonable. As an example, this process revealed that the NAPAP Version 4.2 factors for Industrial Fuel Use emissions allocated no emissions to Sundays; this omission seemed unusual, so further research was initiated to reveal what portion of weekly emissions should properly be allocated to this day;

- When the factors were in final form for input into the FREDS system, a statistical check was made to find outliers. Software was written which scanned similar sets of factors (for example, factors for the Residential Heating emissions category for all 48 States) and calculated the mean value for each factor. The factors were then scanned a second time, and all factors more than two standard deviations from the mean value were pinpointed for explicit examination. When such "abnormal" factors were located, the original data sources were re-examined to assure that no errors in calculation or transcription had been made.

File Format for Input to the FREDS System--

Table 6-4 displays a portion of the U.S. temporal allocation factors as they are formatted for input into the FREDS system. Separate files have been created for the Canadian and the U.S. factors. One line of data contains seasonal, daily, and hourly factors for a single emissions category, for a single state or province (if applicable), for a single day. There are therefore 12 lines of data for each emissions category for each State or province--one line each for a weekday, a Saturday, and a Sunday in each of the four seasons.

## SPATIAL ALLOCATION FACTOR DEVELOPMENT

### Introduction

In the NAPAP emissions records, area source emissions are inventoried by county; for modeling applications of the NAPAP data, area source emissions must be allocated to individual grid cells. The allocation of county-wide area source emissions to grid cells is accomplished by the FREDS Spatial Allocation Module, and depends on the existence of a set of spatial allocation factors. This section describes the development and application of these factors.

The NAPAP Version 5.2 grid system is comprised of 63,000 individual grid cells (210 rows by 300 columns), each 1/6° latitude by 1/4° longitude (approximately 20 km x 20 km), extending from 50° to 125° west longitude and from 25° to 60° north latitude. The grid system covers the continental United States and Canada south of the 60th parallel (the southern border of the Yukon and Northwest Territories). Grid cells are assigned numbers on a Cartesian coordinate system, with row numbers increasing from south to north and column numbers increasing from west to east. Thus, the cell at the southwestern corner of the grid is denoted (1,1); the cell at the northeastern corner is denoted (300,210). Latitude/longitude data can be converted to row/column format using the following equations:

$$\text{Column} = ((125 - \text{longitude}) \times 4) + 1$$

$$\text{Row} = ((\text{latitude} - 25) \times 6) + 1$$

where the numbers 4 and 6 represent the number of grids per degree longitude and latitude, respectively. The resultant integer parts are the row and column; fractional parts are truncated.

TABLE 6-4. SAMPLE DISPLAYING FORMAT OF U.S. AREA SOURCE TEMPORAL ALLOCATION FACTOR RECORDS

| Season/Day Identifier (1 through 12) | State | Emission Category (1 through 99) | Seasonal Multiplier | Daily Multiplier | 24 Hourly Multipliers | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 4 | 1 | 185 | 110 | 67 | 67 | 67 | 83 | 83 | 83 | 100 | 100 | 100 | 43 | 43 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 43 | 43 |
| 11 | 4 | 1 | 185 | 110 | 67 | 67 | 67 | 83 | 83 | 83 | 100 | 100 | 100 | 43 | 43 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 43 | 43 |
| 12 | 4 | 1 | 185 | 110 | 67 | 67 | 67 | 83 | 83 | 83 | 100 | 100 | 100 | 43 | 43 | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 43 | 43 |
| 1 | 5 | 1 | 452 | 110 | 47 | 47 | 47 | 53 | 53 | 53 | 53 | 53 | 53 | 40 | 40 | 40 | 30 | 30 | 30 | 26 | 26 | 26 | 40 | 40 | 40 | 47 | 47 | 47 |
| 2 | 5 | 1 | 452 | 110 | 47 | 47 | 47 | 53 | 53 | 53 | 53 | 53 | 53 | 40 | 40 | 40 | 30 | 30 | 30 | 26 | 26 | 26 | 40 | 40 | 40 | 47 | 47 | 47 |
| 3 | 5 | 1 | 452 | 110 | 47 | 47 | 47 | 53 | 53 | 53 | 53 | 53 | 53 | 40 | 40 | 40 | 30 | 30 | 30 | 26 | 26 | 26 | 40 | 40 | 40 | 47 | 47 | 47 |
| 4 | 5 | 1 | 333 | 110 | 77 | 77 | 77 | 86 | 86 | 86 | 77 | 77 | 77 | 20 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 20 | 56 | 56 | 56 |
| 5 | 5 | 1 | 333 | 110 | 77 | 77 | 77 | 86 | 86 | 86 | 77 | 77 | 77 | 20 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 20 | 56 | 56 | 56 |
| 6 | 5 | 1 | 333 | 110 | 77 | 77 | 77 | 86 | 86 | 86 | 77 | 77 | 77 | 20 | 20 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 20 | 20 | 56 | 56 | 56 |

For each area source emissions category, the purpose of the spatial allocation factors is to allocate emissions for each county among all grid cells which contain a portion of the county. Since the actual areal distribution of emissions within a county is unknown, emissions are assumed to be distributed according to the known distribution of a surrogate indicator. For example, the distribution of housing within a county should be an accurate surrogate indicator for residential fuel use emissions; if 50 percent of County X's housing were located in Grid Cell Y, then 50 percent of County X's residential fuel emissions should be allocated to Grid Cell Y.

An extensive development effort for the spatial allocation factors took place for the NAPAP Version 4.2 Inventory; that development effort is summarized here. For NAPAP Version 5.2, effort has been focused on assuring the quality and completeness of the factors.

The goal of the spatial allocation factor development effort was to create as many surrogate values as possible for each county in the NAPAP study area to allow the user maximum flexibility in assigning county level emissions to specific grid cells. A total of 14 surrogate indicators have been developed, based on the areal distribution of housing, population, land area, and 11 land use categories. After the distribution of the surrogate indicators had been calculated and allocated to grid cells, county level area source emissions could be spatially distributed by matching area source emission categories to the most appropriate surrogate indicators.

## Spatial Allocation Factor Development

The two major data sources used to compile the spatial allocation factors were:

1. 1980 Bureau of the Census population and housing data, and
2. Land use classification data derived from LANDSAT satellite imagery.

Spatial allocation factors were developed separately from the housing/population data and the LANDSAT data during the NAPAP Version 4.2 inventory effort. These separate sets of factors were then merged to create the single spatial allocation factor file used for NAPAP Version 4.2. This file served as the starting point for the quality assurance and reformatting performed for NAPAP Version 5.2.

The following discussion of the development of spatial allocation factors applies only to factors for the U.S. area source emission categories. Because of the different method of compilation of the Canadian area source inventory, and a lack of data on Canadian land use comparable to the U.S. LANDSAT data, no spatial allocation factors like those discussed below exist for the Canadian area source emissions. The allocation of Canadian area source emissions to individual grid cells is discussed under a separate heading.

### Population and Housing Allocation Factors--

U.S. Bureau of the Census data contain information on the distribution of housing and population at several levels of detail more precise than whole-county totals, including (where applicable) township, place, tract, block, and election district. To make possible the spatial allocation of area source emission categories for which housing or population is an appropriate surrogate (e.g., residential heating emissions), NAPAP obtained and adapted these refined Census data, which are available as part of EPA's STF3A Census tapes.

These data allowed the resolution of population and housing patterns to the subcounty level; based on this resolution, a match based on latitude and longitude was made between the subcounty population and housing patterns and individual grid cells, and the allocation of county-wide population and housing to grid cells was completed.

The computer programs written to accomplish this allocation were designed to accommodate anomalies in the Census or emissions data. For example, some localities repress portions of their housing and population data to maintain confidentiality, while the commonwealth of Massachusetts maintains emissions data by AQCR instead of by county. Such problems were overcome after discussion within NAPAP had yielded consensus on appropriate solutions.

### Land Use Spatial Allocation Factors--

The development of the spatial allocation factors based on land use patterns proceeded in three steps:

1. Allocation of land use categories to individual grid cells;
2. Determination of the area of each county located in each grid cell;
3. Calculation of spatial allocation factors based on land use categories and county areas in each grid cell.

This process is portrayed in Figure 6-1.

Allocation of Land Use Categories to Grid Cells--Land use data were obtained through the EPA/ASRL's Meteorology and Assessment Division and consist of 10 land use and land cover classification percentages for each NAPAP grid cell. The data were developed under EPA contract by Lockheed Engineering and Management Services Company's Remote Sensing Laboratory using LANDSAT mosaic images covering the periods 23 July through 31 October 1972, and 1 January through 31 March 1973. Total land use and land cover in each grid cell was divided into the following classifications: .

- Urban Land
- Agricultural Land
- Rangeland
- Deciduous Forest Land
- Coniferous Forest land
- Mixed Forest Land (including forested wetlands)
- Water
- Barren Land
- Nonforested Wetland
- Mixed Agricultural Land and Rangeland

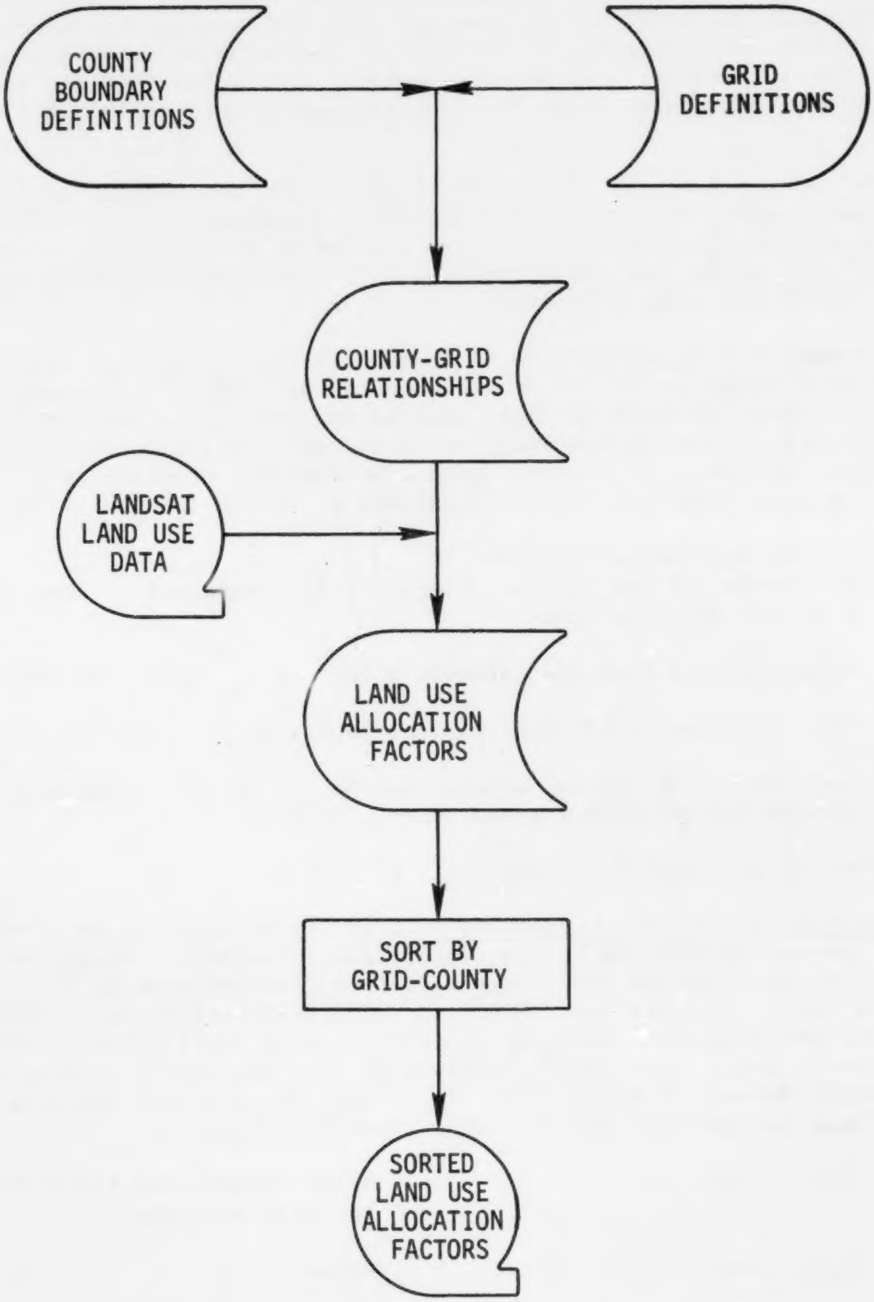

COUNTY BOUNDARY DEFINITIONS
GRID DEFINITIONS
COUNTY-GRID RELATIONSHIPS
LANDSAT LAND USE DATA
LAND USE ALLOCATION FACTORS
SORT BY GRID-COUNTY
SORTED LAND USE ALLOCATION FACTORS

Figure 6-1. Development of land use allocation factors.

Two additional categories--Composite Forest (the sum of Coniferous Forest, Deciduous Forest, and Mixed Forest Land) and Total Land Area (the sum of all classifications minus area covered with water)--were calculated by NAPAP.

Prior to further processing, these data are formatted as a single data file with one record per grid cell. Each record documents the fraction of the grid cell covered by each of the 12 land use categories. These fractions sum to 1 for the 10 LANDSAT categories; the Total Land Area category and Composite Forest fractions both have values less than or equal to one.

Determination of Grid Cell/County Areas Relationships--Since land use classification data were available for each grid cell, while emissions data are stored for individual counties, it was necessary to allocate the total area of each county to all of the grid cells in which a portion of the county is located. EPA/ASRL developed the software to perform this match.

Very simply, this software takes a file which defines the boundaries of each county in the United States and overlays it on the NAPAP grid system. The software then calculates the fraction of each county located in each grid cell which the county overlaps. Figure 6-2 illustrates this process for a single grid cell which contains portions of three counties. For this grid cell, the ASRL software would calculate the proportion of each of Counties A, B, and C located in the cell as follows:

| County | Total Area | Area in Cell | Fraction in Cell |
|---|---|---|---|
| A | 500 | 150 | 0.30 |
| B | 1,000 | 50 | 0.05 |
| C | 800 | 200 | 0.25 |

The fractional totals calculated for each county must sum to 1; the fractional totals for each grid cell do not have to sum to a particular number. The output of this software is a single file, sorted by grid cell number, which contains an identification code for each county overlapping the grid cell, and the fraction of each such county located in the cell.

Calculation of Spatial Allocation Factors--The final step in the calculation of spatial allocation factors based on the LANDSAT land use categories is to match the grid cell/land use allocation pattern with the grid cell/county pattern. For each land use classification in each county overlapping each grid cell, the spatial allocation factor is calculated as follows:

$$\mathrm{SPAFCT}_{CSi} = \frac{(A_{Ci})(A_{Si})}{\sum_i^n (A_{Ci})(A_{Si})}$$

where: $\mathrm{SPAFCT}_{CSi}$ = The spatial allocation factor for County C, land use Type S, and grid i

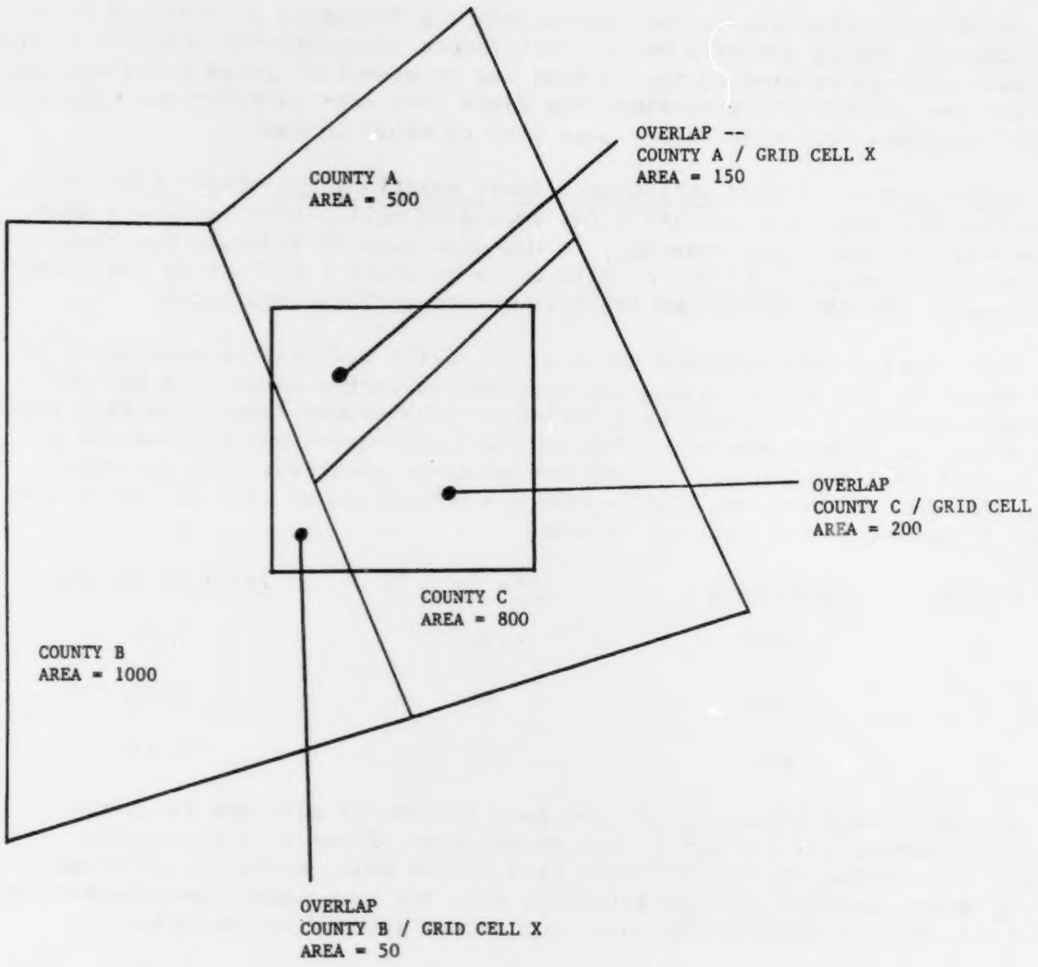

OVERLAP --
COUNTY A / GRID CELL X
AREA = 150
COUNTY A
AREA = 500
OVERLAP
COUNTY C / GRID CELL
AREA = 200
COUNTY C
AREA = 800
COUNTY B
AREA = 1000
OVERLAP
COUNTY B / GRID CELL X
AREA = 50

Figure 6-2. Example of county to grid cell areal relationship.

$A_{Ci}$ = The portion of County C that falls within grid i

$A_{Si}$ = The portion of grid i with land use type S

$n$ = The total number of grids covering County C

For example:

Assume 80 percent of County A falls within grid 1 and 20 percent within grid 2. Agricultural land comprises 10 percent of grid 1 and 75 percent of grid 2. The distribution of emissions from pesticide application, using agricultural land use as the surrogate indicator, would be calculated:

$$\text{SPAFCT}_{\text{grid 1}} = \frac{(0.80)(0.10)}{[(0.80)(0.10) + (0.20)(0.75)]} = 0.35$$

$$\text{SPAFCT}_{\text{grid 2}} = \frac{(0.20)(0.75)}{[(0.80)(0.10) + (0.20)(0.75)]} = 0.65$$

In the above example, 65 percent of County A's emissions from pesticide application are assigned to grid 2, even though more of County A falls within grid 1, because grid 2 has much more agricultural land than grid 1. One limitation of this methodology is that the grids are necessarily assumed to be homogeneous in terms of land use. In the previous example, 10 percent of the land in grid 1 was agricultural and, therefore, 10 percent of the portion of County A that falls within grid 1 is assumed to be agricultural, even if only a fraction of grid 1 covers County A.

The file output from this process contains one record for each county overlapping each grid cell, and 12 spatial allocation factors per record (one factor for each of the 10 LANDSAT land use classifications and one each for the two composite classifications devised by NAPAP). This file is sorted by grid cell number, then merged with the population and housing factors created as described above to yield the complete set of spatial allocation factors suitable for further processing.

Allocation of Canadian Area Source Emissions to Grid Cells--

The Canadian area source emissions files contain data already allocated to individual grid cells (unlike the U.S. emissions data files, in which emissions are initially allocated to counties). Nothing comparable to the U.S. LANDSAT data exists for Canada, nor does the Canadian government maintain statistics as detailed as the U.S. Census data on areal distribution of housing; the best surrogates available as a basis to distribute Canadian area source emissions are various categories of population.

The Canadian Land Directorate provided available allocation data for the 20 x 20 kilometer NAPAP grids in each province in Canada. The Land Directorate was responsible for providing Environment Canada with population, employment, and other data on a grid basis to allocate province-level emissions to the 127 x 127 kilometer grid system used by the Canadians. Environment Canada manually developed additional allocation factors to supplement those generated by the Land Directorate. The factors used by Environment Canada to allocate each area source category were applied to the

NAPAP grid in Canada to the extent possible. However, the allocation parameters developed manually by Environment Canada were not considered. Allocation factors provided by the Land Directorate were used to allocate all area source categories including those for which Environment Canada applied manually-developed factors. Table 6-5 identifies the allocation factors provided and shows which factor was used to allocate each of the area source categories.

## Quality Assurance and File Formatting

Before the spatial allocation factors were processed, they were subjected to quality assurance checks. These checks confirmed: (1) that factors summed to 1 (where appropriate) for each county, and (2) that a nonzero surrogate factor existed for each land use classification in each grid cell.

The first check assured that all emissions assigned a given surrogate would be allocated to grid cells. Without this QA check, if the factors for Agricultural Land, County X, summed to only 0.5, then only half of all emissions assigned Agricultural Land as a spatial allocation surrogate would be allocated to the grid cells covering this county--after processing, half of these emissions would have "disappeared". Conversely, if the factors summed to a value greater than 1, emissions would appear to increase. This QA check summed the allocation factors for each surrogate in each county; if they did not sum to 1, the nonzero factors were normalized to yield this sum.

The second QA check verified that a nonzero factor existed for each spatial allocation surrogate in each county. Another example will highlight the importance of this check: if the LANDSAT data indicated that there was no Agricultural Land in County X, yet the NAPAP Inventory for County X contained emissions for an emission category for which Agricultural Land was the spatial allocation surrogate, these emissions would "disappear" during processing--the spatial allocation factor for this emissions category in County X would equal 0. To insure that all area source emissions are allocated to grid cells, all factors which equalled 0 were set equal to the spatial allocation factor for population.

## Assignment of Spatial Allocation Surrogates

To accomplish the allocation of area source emissions to individual grid cells, each area source emissions category must be matched with one of the spatial allocation surrogates. For example, if Residential Heating emissions are to be allocated to grid cells on the basis of housing patterns, a mechanism must exist to instruct the FREDS Spatial Allocation Module to make this match.

A surrogate factor selection file has been developed to perform this function. Based on discussion within NAPAP, each area source emissions category has been assigned to one of the 14 spatial allocation surrogates. This file is an independent input, so that assignments can be easily changed as new emissions categories are added, or as the development of new surrogates makes the revision of these assignments desirable. The NAPAP Version 5.2 surrogate factor assignments for the U.S. area source emission categories are shown in Table 6-6.

TABLE 6-5. ALLOCATION FACTORS FOR CANADIAN AREA SOURCES

| Allocation factor | Categories allocated |
|---|---|
| Population | Gasoline-powered motor vehicles, off-highway mobile sources, non-highway use of gasoline, dry cleaning, sand and gravel processing, electric power fuel combustion, asphalt production, stone processing, clay products manufacture, refuse incineration, diesel and gasoline marketing, application of surface coatings, landfill sites, concrete batching, cigarette smoking, tire wear, diesel-powered engines, construction sites, general solvent use, and dust from paved roads. |
| Oil Dwellings | None. |
| Gas Dwellings | None. |
| Total Dwellings | Structural fires, residential fuel combustion, fuelwood combustion. |
| Industrial Labor Force | Industrial fuel combustion, ferrous foundries, plastics fabrication. |
| Commercial Labor Force | Commercial fuel combustion, bakeries. |
| Agricultural Labor Force | Fertilizer application, dust from unpaved roads, pesticide application, agricultural tilling and wind erosion, grain handling and milling. |
| Mining Labor Force | Forest fires, slash burning, coal industry, wood industry, natural gas processing, wood waste disposal, crude oil production, mining and rock quarrying, tailing piles. |

## TABLE 6-6. SPATIAL ALLOCATION FACTOR SURROGATES FOR NAPAP VERSION 5.2 AREA SOURCE EMISSIONS CATEGORIES

| CAT. ID | SURROGATE ID | SURROGATE INDICATOR | EMISSIONS CATEGORY |
|---|---|---|---|
| 1 | 2 | Housing | Residential Fuel -- Anthracite Coal |
| 2 | 2 | Housing | Residential Fuel -- Bituminous Coal |
| 3 | 2 | Housing | Residential Fuel -- Distillate Oil |
| 4 | 2 | Housing | Residential Fuel -- Residual Oil |
| 5 | 2 | Housing | Residential Fuel -- Natural Gas |
| 6 | 2 | Housing | Residential Fuel -- Wood |
| 7 | 3 | Urban Land | Commercial/Institutional Fuel -- Anthracite Coal |
| 8 | 3 | Urban Land | Commercial/Institutional Fuel -- Bituminous Coal |
| 9 | 3 | Urban Land | Commercial/Institutional Fuel -- Distillate Oil |
| 10 | 3 | Urban Land | Commercial/Institutional Fuel -- Residual Oil |
| 11 | 3 | Urban Land | Commercial/Institutional Fuel -- Natural Gas |
| 12 | 3 | Urban Land | Commercial/Institutional Fuel -- Wood |
| 13 | 3 | Urban Land | Industrial Fuel -- Anthracite Coal |
| 14 | 3 | Urban Land | Industrial Fuel -- Bituminous Coal |
| 15 | 3 | Urban Land | Industrial Fuel -- Coke |
| 16 | 3 | Urban Land | Industrial Fuel -- Distillate Oil |
| 17 | 3 | Urban Land | Industrial Fuel -- Residual Oil |
| 18 | 3 | Urban Land | Industrial Fuel -- Natural Gas |
| 19 | 3 | Urban Land | Industrial Fuel -- Wood |
| 20 | 3 | Urban Land | Industrial Fuel -- Industrial Process Gas |
| 21 | 2 | Housing | Incineration -- Residential |
| 22 | 3 | Urban Land | Incineration -- Industrial |
| 23 | 3 | Urban Land | Incineration -- Commercial/Institutional |
| 24 | 2 | Housing | Open Burning -- Residential |
| 25 | 3 | Urban Land | Open Burning -- Industrial |
| 26 | 3 | Urban Land | Open Burning -- Commerical/Institutional |
| 27 | 14 | Land Area | Light Duty Gas Vehicles -- Limited Access |
| 28 | 14 | Land Area | Light Duty Gas Vehicles -- Rural |
| 29 | 2 | Housing | Light Duty Gas Vehicles -- Suburban |
| 30 | 3 | Urban Land | Light Duty Gas Vehicles -- Urban |
| 31 | 14 | Land Area | Medium Duty Gas Vehicles -- Limited Access |
| 32 | 14 | Land Area | Medium Duty Gas Vehicles -- Rural |

TABLE 6-6 (continued)

| CAT. ID | SURROGATE ID | SURROGATE INDICATOR | EMISSIONS CATEGORY |
|---|---|---|---|
| 33 | 2 | Housing | Medium Duty Gas Vehicles -- Suburban |
| 34 | 3 | Urban Land | Medium Duty Gas Vehicles -- Urban |
| 35 | 14 | Land Area | Heavy Duty Gas Vehicles -- Limited Access |
| 36 | 14 | Land Area | Heavy Duty Gas Vehicles -- Rural |
| 37 | 2 | Housing | Heavy Duty Gas Vehicles -- Suburban |
| 38 | 3 | Urban Land | Heavy Duty Gas Vehicles -- Urban |
| 39 | 14 | Land Area | Off-Highway Gas Vehicles |
| 40 | 14 | Land Area | Heavy Duty Diesel Vehicles -- Limited Access |
| 41 | 14 | Land Area | Heavy Duty Diesel Vehicles -- Rural |
| 42 | 2 | Housing | Heavy Duty Diesel Vehicles -- Suburban |
| 43 | 3 | Urban Land | Heavy Duty Diesel Vehicles -- Urban |
| 44 | 14 | Land Area | Off-Highway Diesel Vehicles |
| 45 | 3 | Urban Land | Railroad Locomotives |
| 46 | 1 | Population | Aircraft -- Military |
| 47 | 1 | Population | Aircraft -- Civil |
| 48 | 1 | Population | Aircraft -- Commercial |
| 49 | 1 | Population | Vessels -- Coal-Powered |
| 50 | 1 | Population | Vessels -- Diesel |
| 51 | 1 | Population | Vessels -- Residual Oil |
| 52 | 1 | Population | Vessels -- Gasoline |
| 53 | N.A. | N.A. | BLANK (formerly Solvents Purchased) |
| 54 | 1 | Population | Gasoline Marketed |
| 55 | 14 | Land Area | Unpaved Roads |
| 56 | N.A. | N.A. | Unpaved Airport LTO's (NO EMISSIONS DATA) |
| 57 | N.A. | N.A. | Construction Sites (NO EMISSIONS DATA) |
| 58 | N.A. | N.A. | Miscellaneous Wind Erosion (NO EMISSIONS DATA) |
| 59 | N.A. | N.A. | Agricultural Tilling (NO EMISSIONS DATA) |
| 60 | 13 | Composite Forest | Forest Fires |
| 61 | 13 | Composite Forest | Managed Burning |
| 62 | 4 | Agricultural Land | Agricultural Field Burning |
| 63 | N.A. | N.A. | Orchard Heaters (NO EMISSIONS DATA) |
| 64 | 2 | Housing | Structural Fires |

TABLE 6-6 (continued)

| CAT. ID | SURROGATE ID | SURROGATE INDICATOR | EMISSIONS CATEGORY |
|---|---|---|---|
| 65 | N.A. | N.A. | (UNFILLED) |
| 66 | N.A. | N.A. | (UNFILLED) |
| 67 | N.A. | N.A. | (UNFILLED) |
| 68 | N.A. | N.A. | (UNFILLED) |
| 69 | N.A. | N.A. | (UNFILLED) |
| 70 | N.A. | N.A. | (UNFILLED) |
| 71 | 4 | Agricultural Land | Manure Field Application -- Beef Cattle |
| 72 | 4 | Agricultural Land | Manure Field Application -- Dairy Cows |
| 73 | 4 | Agricultural Land | Manure Field Application -- Hogs and Pigs |
| 74 | 4 | Agricultural Land | Manure Field Application -- Broilers |
| 75 | 4 | Agricultural Land | Manure Field Application -- Other Chickens |
| 76 | 4 | Agricultural Land | Anhydrous NH3 Fertilizer Application |
| 77 | 4 | Agricultural Land | Beef Cattle Feed Lots |
| 78 | 1 | Population | Degreasing |
| 79 | 1 | Population | Drycleaning |
| 80 | 1 | Population | Graphic Arts |
| 81 | 1 | Population | Rubber and Plastic Manufacturing |
| 82 | 1 | Population | Architectural Coating |
| 83 | 1 | Population | Auto Body Repair |
| 84 | 1 | Population | Motor Vehicle Manufacturing |
| 85 | 1 | Population | Paper Coating |
| 86 | 1 | Population | Fabricated Metals |
| 87 | 1 | Population | Machinery Manufacturing |
| 88 | 1 | Population | Furniture Manufacturing |
| 89 | 1 | Population | Flat Wood Products |
| 90 | 1 | Population | Other Transportation Equipment Manufacturing |
| 91 | 1 | Population | Electrical Equipment Manufacturing |
| 92 | 1 | Population | Ship Building and Repair |
| 93 | 1 | Population | Miscellaneous Industrial Manufacturing |
| 94 | 1 | Population | Miscellaneous Industrial Solvent Use |
| 95 | 1 | Population | Miscellaneous Non-Industrial Solvent Use |
| 96 | 1 | Population | Utility Area Sources -- Coal Fired Plants |

TABLE 6-6 (continued)

| CAT. ID | SURROGATE ID | SURROGATE INDICATOR | EMISSIONS CATEGORY |
|---|---|---|---|
| 97 | 1 | Population | Utility Area Sources -- Oil Fired Plants |
| 98 | 1 | Population | Utility Area Sources -- Natural Gas Fired Plants |
| 99 | 3 | Urban Land | Minor Area Sources |

## SPECIATION FACTOR DEVELOPMENT

### Introduction

The NAPAP Version 5.0 emissions records contain emissions data for 11 pollutant classes:

$NO_x$
$SO_4$
CO
HF
TSP
THC
$SO_2$
Pb
HCl
$NH_3$
VOC

For three of these classes--$NO_x$, TSP, and THC--a further subclassification is performed for the NAPAP modeling inventories. $NO_x$ emissions are allocated between NO and $NO_2$; TSP emissions are allocated among calcium (Ca), potassium (K), magnesium (Mg), sodium (Na), and "other" species. THC emissions are allocated among up to 30 classes based on photochemical reactivity (28 of these classes are utilized in NAPAP Version 5.2; 10 are used in Version 5.3; see Table 6-7). For TSP emissions, only about 10 percent of point source SCCs are allocated among the five cation species; the balance of point source TSP emissions and area source TSP emissions are not speciated in NAPAP Version 5.2 or 5.3.

### Speciation Methodology

The speciation requirement for hydrocarbon emissions can change depending on the modeling chemistry used in a particular application of an emissions data set. Therefore, it was decided during the development of the NECRMP Inventory in the early 1980s (the speciation methodology adapted for NAPAP) to make hydrocarbon speciation as flexible as possible. This objective was achieved by creating an independent program (PSPLIT) to compute factors which can be used to disaggregate hydrocarbon emissions into selected groups of compounds.

PSPLIT was primarily developed to automate a method for generating hydrocarbon speciation factors for any specified chemistry mechanism or species classification scheme. It also provides an effective means of incorporating revised species profiles for each source type.

The first step in using the flexible speciation capabilities of PSPLIT is to code a set of "species profiles," each of which provides a breakdown of THC emissions to a typical set of component species. In these profiles, each hydrocarbon species is defined by its Storage and Retrieval of Aerometric Data

TABLE 6-7. DEFINITION OF CLASSES FOR HYDROCARBON SPECIATION, VERSIONS 5.2 AND 5.3

REACTIVITY CLASSES FOR 1980 NAPAP INVENTORY VERSION 5.2

| Class Number | Class Name | Class SAROAD Code |
|---|---|---|
| 01 | METHANE | 43201 |
| 02 | ETHANE | 43202 |
| 03 | PROPANE | 43204 |
| 04 | N-BUTANE | 43212 |
| 05 | ISO-BUTANE | 43214 |
| 06 | 2,3-DIMETHYLBUTANE | 43244 |
| 07 | PENTANE | 43220 |
| 08 | ISO-PENTANE | 43221 |
| 09 | OTHER ALKANES | 43299 |
| 10 | ETHYLENE | 43203 |
| 11 | PROPYLENE | 43205 |
| 12 | Not Used | - |
| 13 | ISO-BUTENE | 43215 |
| 14 | TRANS-2-BUTENE | 43216 |
| 15 | OTHER ALKENES | 43298 |
| 16 | BENZENE | 45201 |
| 17 | TOLUENE | 45202 |
| 18 | XYLENES | 45102 |
| 19 | ETHYL BENZENES | 45203 |
| 20 | OTHER AROMATICS | 45999 |
| 21 | FORMALDEHYDE | 43502 |
| 22 | ACETALDEHYDE | 43503 |
| 23 | PROPIONALDEHYDE | 43504 |
| 24 | OTHER ALDEHYDES | 43599 |
| 25 | ACETONE | 43551 |
| 26 | OTHER KETONES | 43598 |
| 27 | FORMIC ACID | 43403 |
| 28 | ACETIC ACID | 43404 |
| 29 | OTHER ORGANIC ACIDS | 43499 |
| 30 | Not Used | - |

REACTIVITY CLASSES FOR 1980 NAPAP INVENTORY VERSION 5.3

| Class Number | Class Name | Class SAROAD Code |
|---|---|---|
| 01 | OLEFINS | 43298 |
| 02 | PARAFFINS | 43199 |
| 03 | TOLUENE | 45202 |
| 04 | XYLENE | 45102 |
| 05 | FORMALDEHYDE | 43502 |
| 06 | OTHER ALDEHYDES | 43511 |
| 07 | ETHYLENE | 43203 |
| 08 | NON-REACTIVES | 43899 |
| 09 | ISOPRENE | 43243 |
| 10 | METHANE | 43201 |
| 11-30 | Not Used | - |

(SAROAD) Code, its molecular weight, and its percentage contribution (by weight) to total profile THC emissions. These profiles are independent of any reactivity scheme. Each species is then matched to a reactivity class using a Species/Class File, allowing the conversion of species profiles (which define emissions for a given SCC) to a reactivity class profile required by users of the NAPAP emissions data. Manipulation of the class assignments in the Species/Class file allows users to modify the definitions of reactivity classes to fit particular modeling requirements.

The creation of the Hydrocarbon Splits file, then, requires three independent input files:

1. An SCC/Profile file, which assigns each SCC to a species profile;

2. A Species/Profile file, which documents the relative contribution of different individual SAROAD species to each species profile; and

3. A Species/Class file, which assigns each SAROAD species to one of up to 30 photochemical classes.

Hydrocarbon speciation then proceeds as follows:

1. The Species/Profile file is merged with the Species/Class file; the result is a set of profiles defined by the relative contribution of each photochemical class to total profile composition; and

2. The Class/Profile matches produced in Step 1 are merged with the SCC/Profile file; the result is an output file in which each SCC is matched with the relative contribution of each photochemical class to total SCC THC emissions by the use of mole factors. These factors are in moles per kilogram, and thus when multiplied by total hydrocarbon emissions for a given SCC, they will yield moles of hydrocarbon in each class.

SCC/Profile and Species/Profile assignments for Version 5.2 are provided in Appendix E. Table 6-8 presents the species/class assignments for Version 5.2, in which each species is assigned to one and only one reactivity class. In Version 5.3, species are assigned to classes on the basis of carbon bond structures rather than photochemical reactivity, and since it is possible for a single compound to have bonds of different character, a species can be apportioned on a percentage basis to more than one class. A list of 5.3 species and their class assignments is presented in Table 6-8. The species/class matrix is filled with "carbon numbers," used to determine mole factors for the respective class. For example, assume that a hypothetical emissions profile contained only one species, 1-heptene. Given a molecular weight of 98.19 grams/mole and a weight fraction of 1.0:

$$\frac{1.0}{98.19 \text{ gm/mole}} \times 1000 \text{ gm/kg} = 10.18 \text{ moles/kg}$$

This result is multiplied by the carbon numbers in the table. Since 1-heptene has an olefin carbon number of 1 and a paraffin carbon number of 5, the resultant mole factors are:

## TABLE 6-8. HYDROCARBON SPECIES/CLASS ASSIGNMENTS FOR 1980 NAPAP INVENTORY VERSIONS 5.2 AND 5.3

| HYDROCARBON SPECIES | SAROAD | 5.2 | 5.3 | | | | 5.3 CARBON NUMBER/CLASS ASSIGNMENTS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CODE | CLASS | CLASS: 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| UNIDENTIFIED HYDROCARBONS | 43000 | 09 | | 2 | | | | | | 3 | | |
| ISOMERS OF HEXANE | 43105 | 09 | | 6 | | | | | | | | |
| ISOMERS OF HEPTANE | 43106 | 09 | | 7 | | | | | | | | |
| ISOMERS OF OCTANE | 43107 | 09 | | 8 | | | | | | | | |
| ISOMERS OF NONANE | 43108 | 09 | | 9 | | | | | | | | |
| ISOMERS OF DECANE | 43109 | 09 | | 10 | | | | | | | | |
| ISOMERS OF UNDECANE | 43110 | 09 | | 11 | | | | | | | | |
| ISOMERS OF TRIDECANE | 43111 | 09 | | 13 | | | | | | | | |
| ISOMERS OF DODECANE | 43112 | 09 | | 12 | | | | | | | | |
| ISOMERS OF TETRADECANE | 43113 | 09 | | 14 | | | | | | | | |
| ISOMERS OF PENTADECANE | 43114 | 09 | | 15 | | | | | | | | |
| C-7 CYCLOPARAFFINS | 43115 | 09 | | 7 | | | | | | | | |
| C-8 CYCLOPARAFFINS | 43116 | 09 | | 8 | | | | | | | | |
| C-9 CYCLOPARAFFINS | 43117 | 09 | | 9 | | | | | | | | |
| MINERAL SPIRITS | 43118 | 09 | | 6 | | | | 1 | | | | |
| LACTOL SPIRITS | 43119 | 09 | | 8 | | | | | | | | |
| ISOMERS OF BUTENE | 43120 | 15 | | | | | | 2 | | | | |
| ISOMERS OF PENTENE | 43121 | 15 | | 1 | | | | 2 | | | | |
| ISOMERS OF PENTANE | 43122 | 09 | | 5 | | | | | | | | |
| TERPENES | 43123 | 15 | 1 | 8 | | | | | | | | |
| METHANE | 43201 | 01 | | 0.01 | | | | | | | | 0.99 |
| ETHANE | 43202 | 02 | | 0.4 | | | | | | 1.6 | | |
| ETHYLENE | 43203 | 10 | | | | | | | 1 | | | |
| PROPANE | 43204 | 03 | | 1.5 | | | | | | 1.5 | | |
| PROPYLENE | 43205 | 11 | 1 | 1 | | | | | | | | |
| ACETYLENE | 43206 | 09 | | 1 | | | | | | 1 | | |
| CYCLOPROPANE | 43207 | 09 | | 3 | | | | | | | | |
| PROPADIENE | 43208 | 15 | | | | | 1 | 1 | | | | |
| METHYLACETYLENE | 43209 | 15 | | 1.5 | | | | | | 1.5 | | |
| N-BUTANE | 43212 | 04 | | 4 | | | | | | | | |
| BUTENE | 43213 | 15 | 1 | 2 | | | | | | | | |
| ISOBUTANE | 43214 | 05 | | 4 | | | | | | | | |
| ISOBUTYLENE | 43215 | 13 | | 1 | | | 1 | 1 | | | | |
| 1,3-BUTADIENE | 43218 | 15 | 1 | | | | 2 | | | | | |
| ETHYLACETYLENE | 43219 | 15 | | 4 | | | | | | | | |
| N-PENTANE | 43220 | 07 | | 5 | | | | | | | | |
| ISOPENTANE | 43221 | 08 | | 5 | | | | | | | | |
| 3-METHYL-1-BUTENE | 43223 | 15 | 1 | 3 | | | | | | | | |
| 1-PENTENE | 43224 | 15 | 1 | 3 | | | | | | | | |
| CIS, 2-PENTENE | 43227 | 15 | | 1 | | | | 2 | | | | |
| 2-METHYL,2-BUTENE | 43228 | 15 | | 3 | | | | 1 | | | | |
| N-HEXANE | 43231 | 09 | | 6 | | | | | | | | |
| N-HEPTANE | 43232 | 09 | | 7 | | | | | | | | |
| N-OCTANE | 43233 | 09 | | 8 | | | | | | | | |
| N-NONANE | 43235 | 09 | | 9 | | | | | | | | |
| N-DECANE | 43238 | 09 | | 10 | | | | | | | | |
| N-UNDECANE | 43241 | 09 | | 11 | | | | | | | | |
| CYCLOPENTANE | 43242 | 09 | | 5 | | | | | | | | |
| 1-HEXENE | 43245 | 15 | 1 | 4 | | | | | | | | |
| 2,4, DIMETHYL PENTANE | 43247 | 09 | | 7 | | | | | | | | |

## TABLE 6-8 (continued)

| HYDROCARBON SPECIES | SAROAD CODE | 5.2 CLASS | 5.3 CLASS: 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYCLOHEXANE | 43248 | 09 |  | 6 |  |  |  |  |  |  |  |  |
| N-DODECANE | 43255 | 09 |  | 12 |  |  |  |  |  |  |  |  |
| N-TRIDECANE | 43258 | 09 |  | 13 |  |  |  |  |  |  |  |  |
| N-TETRADECANE | 43259 | 09 |  | 14 |  |  |  |  |  |  |  |  |
| N-PENTADECANE | 43260 | 09 |  | 15 |  |  |  |  |  |  |  |  |
| METHYLCYCLOHEXANE | 43261 | 09 |  | 7 |  |  |  |  |  |  |  |  |
| METHYLCYCLOPENTANE | 43262 | 09 |  | 6 |  |  |  |  |  |  |  |  |
| 1-HEPTENE | 43264 | 15 | 1 | 5 |  |  |  |  |  |  |  |  |
| 1-OCTENE | 43265 | 15 | 1 | 6 |  |  |  |  |  |  |  |  |
| 3,3 DIMETHYL, 1-PENTENE | 43268 | 15 |  | 5 |  |  |  |  |  |  |  |  |
| N-HEXADECANE | 43281 | 09 |  | 16 |  |  |  |  |  |  |  |  |
| N-HEPTADECANE | 43282 | 09 |  | 17 |  |  |  |  |  |  |  |  |
| N-OCTADECANE | 43283 | 09 |  | 18 |  |  |  |  |  |  |  |  |
| N-NONADECANE | 43284 | 09 |  | 19 |  |  |  |  |  |  |  |  |
| N-EICOSANE | 43285 | 09 |  | 20 |  |  |  |  |  |  |  |  |
| N-HENEICOSANE | 43286 | 09 |  | 21 |  |  |  |  |  |  |  |  |
| N-DOCOSANE | 43287 | 09 |  | 22 |  |  |  |  |  |  |  |  |
| C8 OLEFIN UNK | 43290 | 15 | 1 | 6 |  |  |  |  |  |  |  |  |
| METHYL ALCOHOL | 43301 | 09 |  | 1 |  |  |  |  |  |  |  |  |
| ETHYL ALCOHOL | 43302 | 09 |  | 2 |  |  |  |  |  |  |  |  |
| N-PROPYL ALCOHOL | 43303 | 09 |  | 3 |  |  |  |  |  |  |  |  |
| ISOPROPYL ALCOHOL | 43304 | 09 |  | 3 |  |  |  |  |  |  |  |  |
| N-BUTYL ALCOHOL | 43305 | 09 |  | 2 |  |  |  | 1 |  |  |  |  |
| ISOBUTYL ALCOHOL | 43306 | 09 |  | 4 |  |  |  |  |  |  |  |  |
| BUTYL CELLOSOLVE | 43308 | 09 |  | 4 |  |  |  | 1 |  |  |  |  |
| TERT-BUTYL ALCOHOL | 43309 | 09 |  |  |  |  |  |  |  | 4 |  |  |
| METHYL CELLOSOLVE | 43310 | 09 |  | 1 |  |  |  | 1 |  |  |  |  |
| CELLOSOLVE | 43311 | 09 |  | 2 |  |  |  | 1 |  |  |  |  |
| DIACETONE ALCOHOL | 43320 | 26 |  | 4 |  |  |  | 1 |  |  |  |  |
| ETHYL ETHER | 43351 | 09 |  | 2 |  |  |  | 1 |  |  |  |  |
| GLYCOL ETHER | 43367 | 09 |  | 2 |  |  |  |  |  |  |  |  |
| GLYCOL | 43368 | 09 |  | 2 |  |  |  |  |  |  |  |  |
| PROPYLENE GLYCOL | 43369 | 09 |  | 3 |  |  |  |  |  |  |  |  |
| ETHYLENE GLYCOL | 43370 | 09 |  | 2 |  |  |  |  |  |  |  |  |
| TETRAHYDROFURAN | 43390 | 09 |  | 3 |  |  | 1 |  |  |  |  |  |
| ACETIC ACID | 43404 | 28 |  | 1 |  |  |  |  |  | 1 |  |  |
| METHYL ACETATE | 43432 | 29 |  |  |  |  |  |  |  | 3 |  |  |
| ETHYL ACETATE | 43433 | 29 |  | 3 |  |  |  |  |  | 1 |  |  |
| PROPYL ACETATE | 43434 | 29 |  | 4 |  |  |  |  |  | 1 |  |  |
| N-BUTYL ACETATE | 43435 | 29 |  | 5 |  |  |  |  |  | 1 |  |  |
| ETHYL ACRYLATE | 43438 | 15 |  | 1 |  |  |  | 2 |  |  |  |  |
| CELLOSOLVE ACETATE | 43443 | 09 |  | 3 |  |  |  | 1 |  | 1 |  |  |
| ISOPROPYL ACETATE | 43444 | 09 |  | 5 |  |  |  |  |  |  |  |  |
| METHYL AMYL ACETATE | 43445 | 09 |  | 8 |  |  |  |  |  |  |  |  |
| ISOBUTYL ACETATE | 43446 | 09 |  | 6 |  |  |  |  |  |  |  |  |
| DIMETHYLFORMAMIDE | 43450 | 24 |  |  |  |  |  |  |  | 3 |  |  |
| ISOBUTYL ISOBUTYRATE | 43451 | 09 |  | 6 |  |  |  | 1 |  |  |  |  |
| 2-ETHOXYETHYL ACETATE | 43452 | 09 |  | 4 |  |  |  | 1 |  |  |  |  |
| FORMALDEHYDE | 43502 | 21 |  |  |  |  | 1 |  |  |  |  |  |
| ACETALDEHYDE | 43503 | 22 |  |  |  |  |  | 1 |  |  |  |  |

## TABLE 6-8 (continued)

| HYDROCARBON SPECIES | SAROAD CODE | 5.2 CLASS | 5.3 CLASS: 1 | 5.3 CARBON NUMBER/CLASS ASSIGNMENTS 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BUTYRALDEHYDE | 43510 | 24 |  | 2 |  |  |  | 1 |  |  |  |  |
| ALDEHYDE | 43513 | 24 |  | 6 |  |  |  | 1 |  |  |  |  |
| ACETONE | 43551 | 25 |  | 3 |  |  |  |  |  |  |  |  |
| METHYL ETHYL KETONE | 43552 | 26 |  | 4 |  |  |  |  |  |  |  |  |
| METHYL N-BUTYL KETONE | 43559 | 26 |  | 6 |  |  |  |  |  |  |  |  |
| METHYL ISOBUTYL KETONE | 43560 | 26 |  | 6 |  |  |  |  |  |  |  |  |
| CYCLOHEXANONE | 43561 | 26 |  | 7 |  |  |  |  |  |  |  |  |
| ETHYLENE OXIDE | 43601 | 09 |  | 1 |  |  |  |  |  | 1 |  |  |
| PROPYLENE OXIDE | 43602 | 09 |  | 2 |  |  |  |  |  | 1 |  |  |
| ACETONITRILE | 43702 | 15 |  | 1 |  |  |  |  |  | 1 |  |  |
| ACRYLONITRILE | 43704 | 15 | 1 | 1 |  |  |  |  |  |  |  |  |
| METHYLAMINE | 43720 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| ETHYLAMINE | 43721 | 09 |  | 1 |  |  |  |  |  | 1 |  |  |
| TRIMETHYLAMINE | 43740 | 09 |  | 3 |  |  |  |  |  |  |  |  |
| METHYL CHLORIDE | 43801 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| DICHLOROMETHANE | 43802 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| CHLOROFORM | 43803 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| CARBON TETRABROMIDE | 43807 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| TRICHLORO-FLUOROMETHANE | 43811 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| ETHYL CHLORIDE | 43812 | 09 |  |  |  |  |  |  |  | 2 |  |  |
| 1,1,DICHLOROETHANE | 43813 | 09 |  |  |  |  |  |  |  | 2 |  |  |
| 1,1,1,-TRICHLOROETHANE | 43814 | 09 |  |  |  |  |  |  |  | 2 |  |  |
| ETHYLENE DICHLORIDE | 43815 | 09 |  |  |  |  |  |  | 1 |  |  |  |
| PERCHLOROETHYLENE | 43817 | 15 |  |  |  |  |  |  |  | 2 |  |  |
| METHYLENE BROMIDE | 43819 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| 1,1,2-TRICHLOROETHANE | 43820 | 09 |  |  |  |  |  |  |  | 2 |  |  |
| TRICHLOROTRIFLUOROETHANE | 43821 | 09 |  |  |  |  |  |  |  | 2 |  |  |
| TRIMETHYLFLUOROSILANE | 43822 | 09 |  |  |  |  |  |  |  | 3 |  |  |
| DICHLORODIFLUOROMETHANE | 43823 | 09 |  |  |  |  |  |  |  | 1 |  |  |
| TRICHLOROETHYLENE | 43824 | 15 |  |  |  |  |  |  | 1 |  |  |  |
| VINYL CHLORIDE | 43860 | 15 |  |  |  |  |  |  | 1 |  |  |  |
| PRIM. & SEC-ALKYL BENZENES | 45100 | 20 |  | 3 |  | 1 |  |  |  |  |  |  |
| NAPHTHA | 45101 | 09 |  | 8 |  |  |  |  |  |  |  |  |
| ISOMERS OF XYLENE | 45102 | 18 |  |  |  | 1 |  |  |  |  |  |  |
| DIMETHYLETHYLBENZENE | 45103 | 20 |  | 2 |  | 1 |  |  |  |  |  |  |
| ISOMERS OF ETHYLTOLUENE | 45104 | 20 |  | 1 |  | 1 |  |  |  |  |  |  |
| ISOMERS OF BUTYLBENZENE | 45105 | 20 |  | 3 | 1 |  |  |  |  |  |  |  |
| ISOMERS OF DIETHYLBENZENE | 45106 | 20 |  | 2 |  | 1 |  |  |  |  |  |  |
| ISOMERS OF TRIMETHYLBENZENE | 45107 | 20 |  | 1 |  | 1 |  |  |  |  |  |  |
| ISOMERS OF PROPYLBENZENE | 45108 | 20 |  | 2 | 1 |  |  |  |  |  |  |  |
| BENZENE | 45201 | 16 |  | 1 |  |  |  |  |  | 5 |  |  |
| TOLUENE | 45202 | 17 |  |  | 1 |  |  |  |  |  |  |  |
| ETHYLBENZENE | 45203 | 19 |  | 1 | 1 |  |  |  |  |  |  |  |
| ORTHO XYLENE | 45204 | 18 |  |  |  | 1 |  |  |  |  |  |  |
| 1,3 DIMETHYLBENZENE | 45205 | 18 |  |  |  | 1 |  |  |  |  |  |  |
| 1,3,5-TRIMETHYLBENZENE | 45207 | 20 |  | 1 |  | 1 |  |  |  |  |  |  |
| M-ETHYLTOLUENE | 45212 | 20 |  | 1 |  | 1 |  |  |  |  |  |  |
| N-BUTYLBENZENE | 45214 | 20 |  |  |  |  |  |  |  |  |  |  |
| TERT-BUTYLBENZENE | 45215 | 20 |  | 1 | 1 |  |  |  |  | 3 |  |  |
| SEC-BUTYLBENZENE | 45216 | 20 |  | 3 | 1 |  |  |  |  |  |  |  |

## TABLE 6-8 (continued)

| HYDROCARBON SPECIES | SAROAD CODE | 5.2 CLASS | 5.3 CLASS: 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STYRENE | 45220 | 20 | | | 1 | | 1 | | | | | |
| A-METHYLSTYRENE | 45221 | 20 | | 1 | 1 | | 1 | | | | | |
| 1,2,3-TRIMETHYLBENZENE | 45225 | 20 | | 1 | | 1 | | | | | | |
| ISOMERS OF TRIMETHYLBENZENE | 45230 | 20 | | 1 | | 1 | | | | | | |
| TETRAMETHYLBENZENE | 45232 | 20 | | 2 | | 1 | | | | | | |
| TRI/TETRAALKYL BENZENE | 45233 | 20 | | 3 | | 1 | | | | | | |
| PHENOLS | 45300 | 20 | | | | | | 1 | | 4 | | |
| XYLENE BASE ACIDS | 45401 | 29 | | | | 1 | | | | | | |
| CHLOROBENZENE | 45801 | 20 | | 5 | | | | | | 1 | | |
| 1,4 DIOXANE | 46201 | 09 | 1 | | | | | 1 | | | | |

$$\text{olefin:}\quad 10.18\ (1) = 10.18\ \frac{\text{moles olefin}}{\text{kg THC emissions}}$$

$$\text{paraffin:}\quad 10.18\ (5) = 50.9\ \frac{\text{moles paraffin}}{\text{kg THC emissions}}$$

Emissions profiles containing more than one species are handled in the same manner, by using the appropriate profile weight fractions and summing each species' contribution to each bond class.

A separate species profile does not exist for every SCC. Since many SCCs produce emissions with the same or very similar THC species mixes, there are many fewer THC species profiles (approximately 175) than there are SCCs (approximately 1,250 point source SCCs, 88 U.S. area source SCCs, and 150 Canadian area source SCCs).

The speciation of $NO_x$ emissions into NO and $NO_2$ is more straightforward. Each species profile also includes the weight percents of NO and $NO_2$ which comprise the profile's $NO_x$ emissions. When an SCC is matched with a species profile to create a species mole factor record, these weight percents are carried along and become the allocation factors for these two species.

## Speciation Factor Development

The NAPAP Version 4.2 and Version 5.2 species mole factors are built upon those originally created for the NECRMP Inventory and modeling effort. The original development of the species mole factors for NECRMP consisted of an extensive exercise in data collection and reduction.

For NECRMP, data were collected on the species makeup of hydrocarbon emissions for all SCCs included in the NECRMP Inventory. From this large data set, the smaller set of species profiles was distilled, and each SCC was assigned to one of these profiles. The NECRMP effort resulted in the creation of the first set of SCC/Profile, Species/Profile, Species/Class, and Species Mole Factor files.

A number of improvements and expansions to the NECRMP species mole factors were made during the NAPAP Version 4.2 Inventory effort. Chief among these were:

1. Addition of 198 point source SCCs. These were either matched with existing species profiles, or were assigned new profiles developed during the NAPAP Version 4.2 effort; and

2. Reassignment of the area source species profiles. The NAPAP area source categories were similar but not identical to those used for NECRMP. Some new categories were added, necessitating the assignment or development of species profiles, and some categories were combinations of several NECRMP categories, necessitating the assignment of the most appropriate species profile.

## Modifications to the Species Factors for NAPAP Version 5.2

Refinement and expansion of the species mole factors for NAPAP Version 5.2 have proceeded in four areas:

1. Creation of 169 new species profiles. A review of the NAPAP Version 4.2 species mole factors revealed that species profiles assigned to some SCCs did not precisely reflect actual composition of THC emissions for these SCCs. In addition, some newly added SCCs were not adequately represented by existing species profiles.
2. Expansion of photochemical reactivity classes from 10 to 30;
3. Expansion of U.S. area source SCCs from 54 to 88, addition of Canadian area source SCCs, and addition of approximately 40 point source SCCs;
4. Addition of TSP speciation into five alkaline dust fractions for a subset of all point source SCCs.

### Creation of New Species Profiles--

A thorough review of the assignment of SCCs to species profiles was undertaken for the NAPAP Version 5.2 effort. On the basis of this review, it was decided that profiles could be more precise for many SCCs. The review consisted of an engineering analysis of the match between the actual typical species composition of THC emissions for a given SCC and the species profile assignment for that SCC. For most SCCs, the assignment of SCCs to species profiles was sound, but for some the acquisition of new data on emission composition made possible the creation of a new and more accurate species profile.

A second reason for the creation of the new species profiles was the addition of new emissions categories to the NAPAP Version 5.2 Inventory (see below). For many of these new SCCs, existing species profiles accurately represented the THC composition of emissions. For others, however, a review of emissions data revealed that no existing species profile adequately mimicked this composition, and new profiles were developed to represent the species breakdowns of these emissions.

### Expansion of the Number of Photochemical Reactivity Classes--

At the request of NCAR, NAPAP has expanded the number of photochemical reactivity classes into which THC emissions are allocated from 10 to 30. As explained above, each of the 160 hydrocarbon species can be assigned to a user-defined class on the basis of any scheme desired by the NAPAP user; in this case the NCAR modelers have availed themselves of this flexible feature of the NAPAP data handling system to request a species classification scheme specific to their needs.

NCAR assisted NAPAP in matching each THC species to one of the 30 photochemical classes, and reviewed and approved all such assignments before the speciation factors were processed through the FREDS system. The

NAPAP Version 5.2 Species/Class file, which defines the assignment of each SAROAD species to its photochemical class, is printed in Table 6-8.

Modifications to the PSPLIT Program--The PSPLIT program, installed on the NCC UNIVAC, performs the function of merging the Species/Class, SCC/Profile, and Species/Profile files to create a Species Mole Factor file. PSPLIT was originally written for the NECRMP modeling effort, and was used without major modification for the NAPAP Version 4.2 effort. PSPLIT was written to accept assignment of SAROAD species to only 10 classes; the program therefore had to be modified before the 30 classes requested by the NCAR modelers could be processed. This programming assignment was carried out by NAPAP, and the modified PSPLIT remains available for further use in inventory development.

#### Expansion of the Number of SCCs--

The NAPAP Version 5.0 emissions inventory contains some 230 Source Classification Codes not represented in earlier NAPAP inventories. These additions reflect:

1. Expansion of the number of U.S. area source emission categories from 54 to 88;
2. Inclusion of 157 Canadian area source emission categories for the first time; and
3. Addition of some 40 new point source emission categories.

After the nature of these added SCCs was known, it was possible to assign appropriate species profiles. As explained above, in many cases existing species profiles proved accurately to represent the THC composition of these emissions classes; in others, however, new species profiles were generated based on data on the composition of the hydrocarbon portion of these emissions.

#### Addition of TSP Speciation--

For approximately 10 percent of all point source SCCs, TSP emissions are speciated in NAPAP Version 5.2 into five alkaline dust categories according to weight percent; these categories are calcium (Ca), magnesium (Mg), potassium (K), sodium (Na), and "other". TSP emissions for a total of approximately 140 8-digit SCCs are allocated among the five alkaline dust categories.

### Speciation Files

A total of five files are relevant to the development and use of the speciation factors. Three of these files serve as input to the PSPLIT program:

1. the SCC/Profile file, used to match each SCC with the appropriate THC species profile;
2. the Species/Profile file, which specifies the relative contribution of individual SAROAD species to each species profile; and
3. the Species/Class file, which assigns each SAROAD species to one of 30 photochemical classes.

The remaining two files are the speciation files themselves, the files which are processed by the FREDS system. The THC/$NO_x$ Species Mole Factor file is output from PSPLIT, as described above. The separate TSP Species Mole Factor file was developed from Canadian data on TSP speciation in a separate development effort.

# SECTION 7

# EMISSIONS INVENTORY SOFTWARE DEVELOPMENT AND DATA PROCESSING

## FREDS SYSTEM

The previous release of the 1980 NAPAP inventory, Version 4.0, was converted into a format suitable for input into the RADM by the Regional Model Data Handling System (RMDHS). RMDHS was originally developed to process the NECRMP emissions inventory and was subsequently modified by Alliance to accommodate the NAPAP 4.2 inventory requirements. Primarily due to limitations placed on the number of pollutants that could be processed through the system, RMDHS was judged unsuitable (Sellars, et al., 1984) for use in modifying the 1980 NAPAP Version 5.0 inventory to produce the 5.2 inventory modeler's tapes. Therefore, in order to meet the requirements of the Version 5.0/5.2 inventories, the Flexible Regional Emissions Data System was developed in 1985 (Lebowitz and Ackerman, 1987).

The FREDS system consists of a number of independent software modules written in the language of the Statistical Analysis System (SAS) on the National Computer Center's IBM 3090 computer. SAS was chosen due to its flexibility with regard to file structure, its powerful "macro" commands, and its diverse statistical and graphics capabilities which permit almost unlimited analysis of the emissions data. The role of the FREDS system in the development of the 1980 NAPAP 5.2 inventory is to extract pertinent emissions data from the 1980 NAPAP 5.0 inventory, resolve emissions data temporally and spatially, resolve composite emissions to individual species, and output the data in a format suitable for use as input to the RADM. This is accomplished by the execution of five independent FREDS modules; the Model Data Extraction Module, the Speciation Module, the Temporal Allocation Module, the Spatial Allocation Module, and the Model Input Preprocessor. A brief description of each module appears in the following paragraphs.

### Model Data Extraction Module

MDEM reads the NAPAP 5.0 annual emissions file to produce a SAS file suitable for processing through the rest of the FREDS system. In addition, MDEM can produce industry-specific subfiles and/or minor point source files. Neither of these options was applied to the 5.0 inventory. MDEM must be the first module executed in order to achieve file compatibility throughout the rest of the FREDS system.

## Speciation Module

The Speciation Module accepts as input any FREDS-compatible file that has not been speciated, and applies speciation factors to each record. It has been designed to receive as input two files containing speciation factors. One file, the output file of the PSPLIT program, contains mole fractions for up to 30 hydrocarbon classes in addition to NO and $NO_2$ percentages. The other speciation factor file provides a mechanism for including speciation factors for other pollutants; for the 5.0 inventory, this includes alkaline dust species applied to TSP emissions. The Speciation Module can support processing of up to 450 speciation factors and five levels of specificity (SCC, state, county, plant, and point), ensuring maximum flexibility for speciation strategies to be developed in future inventories.

## Temporal Allocation Module

The temporal allocation of point source and area source data is carried out in the Temporal Allocation Module. Any FREDS-compatible file is suitable as input. The module applies to each emission record a time zone offset to Greenwich Mean Time (GMT) and a daylight savings time indicator, as well as seasonal, daily, and hourly temporal fractions. The temporal data are input from two separate files: the time zone file, which contains the GMT offset plus the daylight savings flag for every county in the NAPAP study area, and the temporal allocation factor file described in the previous section. Each emission record must have a time zone offset to be processed successfully. Temporal allocation factors may have the same levels of specificity as the speciation factors. Furthermore, any point source record that does not have a corresponding match in the temporal allocation factor file will have a pattern generated based on the operating rate data of the point source. If the operating rate data is missing or incomplete, a uniform temporal pattern is generated.

## Spatial Allocation Module

The Spatial Allocation Module spatially allocates FREDS compatible emissions files into the 20 x 20 km (1/4 degree longitude by 1/6 degree latitude) grid system used by the RADM. For point sources, the module uses either polar coordinates or UTM coordinates to calculate the proper column (X coordinate) and row (Y coordinate) position of the source within the NAPAP study area. Point sources with missing coordinates are placed in a separate file. Area source emissions are allocated on a county-basis to the grid according to known distributions of surrogate indicators as discussed in the previous section. The Spatial Allocation Module has the ability to process grid systems using sizes other than the 20 x 20 km grids used for the NAPAP inventory. Point sources are checked for inclusion within county boundaries; if they are outside the county, they are assigned to the county centroid. Area sources with no spatial factor match are placed in an orphan file for further consideration.

### Model Input Preprocessor

The Model Input Preprocessor is the last step of the FREDS system. For point sources, this module combines the resolved FREDS-compatible files (those files which have been processed through the four modules described above) to produce a master file in SAS format and a point source modeler's tape in EBCDIC format. Area sources, due to the large amount of data involved, are processed in a different manner. The user must provide the number of the temporal scenario desired (Table 3-7). The model input preprocessor will combine the speciated, temporally, and spatially resolved area source data to produce a condensed gridded hourly emission file for the chosen temporal scenario.

## DATA PROCESSING RESULTS

### 5.0 Inventory

The 1980 NAPAP Emissions Inventory Version 5.0 resides in four files: U.S. point sources, Canadian point sources, U.S. area sources, and Canadian area sources.

The U.S. point source file contains annual emissions data at the process (SCC) level for all 11 major NAPAP pollutants. In addition to emissions, the file has complete stack information, fuel parameters, operating rate data, emission factors, identification and location information, and control equipment parameters. There are 50,159 records encompassing the contiguous United States.

The Canadian point source file has annual pollutant data, reported at the process level, for 8 of the 11 major NAPAP pollutants plus alkaline dust species. Lead, HCl, and HF are not reported in the Canadian inventory. Since the Canadian data were not based on NEDS submittals, they are incomplete in a number of areas. At this time, only the emissions and identification and location data can be considered accurate. The stack data are complete; however, SCC averages were inserted to supplement missing values in approximately two-thirds of the records. The file contains 2,745 records.

The U.S. area source data base is composed of identification information and county-level emissions for the 11 major NAPAP pollutants. Emissions within a county are divided into 88 area source categories (Appendix D). The file contains 245,405 observations which cover 3,070 counties within the contiguous U.S.

Canadian area source emissions are reported at the province level for 8 of the 11 major NAPAP pollutants. The pollutants missing in the area source file are the same as those in the Canadian point source file: lead, HF and HCl. Provincial emissions are divided into 157 area source categories (Appendix D); these categories are different than the U.S. area source categories. There are 1,255 records in the file, covering all 12 Canadian provinces.

## 5.2 Inventory

Each of the four 5.0 annual emissions files were processed through FREDS separately to produce the 5.2 inventory. Processing results for each file are summarized below.

The 5.0 U.S. point source annual emissions were processed by the Model Data Extraction Module to extract pertinent modeling data. Next, the MDEM output file was run through the Spatial Alloсiation Module, which identified 573 sources with either missing or invalid coordinate data. These sources were placed at their respective county centroids. The data were then processed successfully through the Speciation and Temporal Allocation Modules. Processing results are summarized in Table 7-1. The Temporal Allocation Module output file was used as input to the Model Input Preprocessor, where point sources from the U.S. and Canada were combined to form a single point source Version 5.2 SAS master file from which the modeler's tape was produced.

The Canadian 5.0 point source annual emissions file successfully completed MDEM. The Spatial Allocation Module identified 104 sources located outside the NAPAP 5.2 study area; a number of these points were found to have incorrect data. Those sources were corrected and resubmitted through the Spatial Allocation Module. An additional 40 sources were not within the NAPAP grid system. It should be noted that county centroid QA processing of the Canadian data was not possible since the Canadian "counties" were not counties in the U.S. sense, but rather census districts for which there were no centroids available. Speciation Module processing of the Spatial Allocation Module output file proceeded without incident. Temporal Allocation Module results showed a large number of plants (2,574) were missing operating rate data. Canadian point source results appear in Table 7-2.

Processing of the U.S. 5.0 area source annual emissions file through FREDS proceeded through the Model Data Extraction Module and the Speciation Module without incident. Upon Spatial Allocation Module execution, it became apparent that, due to the large number of records output from the Spatial Allocation Module, the U.S. file would have to be divided into smaller, more manageable pieces. Thus, the Spatial Allocation Module output file was split into four subfiles which were used as input to the Temporal Allocation Module, which was run 12 times on each subfile, once for each temporal scenario. U.S. area source processing is summarized in Table 7-3. The Model Input Preprocessor combined the four U.S. subfiles with the Canadian file to form a complete NAPAP area source modeler's tape. Twelve Model Input Preprocessor runs were required to produce all of the 5.2 area source modeler's tapes.

The Canadian 5.0 area source annual emissions file proceeded through the Model Data Extraction Module and the Speciation Module without incident. As in the 5.0 inventory, Yukon and Northwest Territories were dropped since they are outside the NAPAP study area. Due to the nature of the Canadian spatial data, the Spatial Allocation Module was bypassed in favor of a customized program which could accommodate the differences in the Canadian grid percentages. The spatially allocated emissions were run through the Temporal

TABLE 7-1. FREDS PROCESSING--U.S. POINT SOURCES

| FREDS module | Input records | Output records | Comments |
|---|---|---|---|
| MDEM | 50,159 | 50,159 | |
| SAM | 50,159 | 50,159 | 573 sources placed in county centroids |
| TAM | 50,159 | 50,159 | Temporal pattern basis:<br>- 1,766 state specific factors<br>- 5,537 SCC specific factors<br>- 42,843 operating rate data<br>- 13 uniform distribution |
| SM | 50,159 | 50,158 | 1 source with invalid SCC code removed |

TABLE 7-2. FREDS PROCESSING--CANADIAN POINT SOURCES

| FREDS module | Input records | Output records | Comments |
|---|---|---|---|
| MDEM | 2,745 | 2,745 | |
| SAM | 2,745 | 2,705 | 40 sources located outside NAPAP boundaries |
| TAM | 2,705 | 2,705 | Temporal pattern basis:<br>- 131 SCC specific factors<br>- 0 operating rate data<br>- 2,574 uniform distribution |
| SM | 2,705 | 2,705 | |

## TABLE 7-3. FREDS PROCESSING--U.S. AREA SOURCES

| FREDS module | Input records | Output records | Comments |
|---|---|---|---|
| MDEM | 245,405 | 245,405 | |
| SM | 245,405 | 245,405 | |
| SAM | 245,405 | 3,184,248 | Divided into four subfiles |
| TAM | 3,184,248 | 3,184,248 | Temporal pattern basis:<br>- 551,043 state specific factors<br>- 2,633,205 SCC specific factors |

Allocation Module 12 times in order to produce one gridded, hourly emissions file for each temporal scenario. Processing information may be found in Table 7-4. As mentioned earlier, the Canadian Temporal Allocation Module output was combined with the U.S. Temporal Allocation Module output subfiles in the Model Input Preprocessor to produce the area source modeler's tapes.

### 5.3 Inventory

The 1980 NAPAP Version 5.3 inventory was produced from the NAPAP 5.0 data. It is identical to the NAPAP 5.2 inventory except in the area of hydrocarbon speciation. The 5.3 inventory contains 10 hydrocarbon classes apportioned using Carbon IV chemistry, whereas the 5.2 inventory employs 28 photochemical classes. Processing of the 5.3 inventory was similar to that of the 5.2 inventory.

## PRODUCTS AVAILABLE

Major files produced by FREDS processing and brief descriptions appear in Table 7-5. In addition, intermediate FREDS processing files can be made available if necessary. Formats for each product are included in Tables 7-6 through 7-11.

TABLE 7-4. FREDS PROCESSING--CANADIAN AREA SOURCES

| FREDS module | Input records | Output records | Comments |
|---|---|---|---|
| MDEM | 1,255 | 1,255 | |
| SM | 1,255 | 1,114 | Yukon, N.W. Territories and province totals removed |
| SAM | 1,114 | 545,851 | Temporal pattern basis:<br>- 467,899 province specific factors<br>- 77,952 SCC specific factors |

TABLE 7-5. NAPAP VERSION 5 PRODUCTS

| | Version | Description | Temporal resolution | Character set | Format tables |
|---|---|---|---|---|---|
| A | 5.0/5.2/5.3 | Development of the 1980 NAPAP Emissions Inventory (Report) | | | |
| B | 5.0 | U.S. Point Sources | Annual | EBCDIC | 7-6 |
| C | | Canada Point Sources | | EBCDIC | 7-6 |
| D | | * U.S. Area Sources | | EBCDIC | 7-7 |
| E | | Canada Area Sources | | EBCDIC | 7-7 |
| F | 5.2 | Point Sources | Hourly | EBCDIC | 7-8 |
| G | | ** Area Sources - Winter Weekday | | EBCDIC | 7-9 |
| H | | Area Sources - Winter Saturday | | EBCDIC | 7-9 |
| I | | Area Sources - Winter Sunday | | EBCDIC | 7-9 |
| J | | Area Sources - Spring Weekday | | EBCDIC | 7-9 |
| K | | Area Sources - Spring Saturday | | EBCDIC | 7-9 |
| L | | Area Sources - Spring Sunday | | EBCDIC | 7-9 |
| M | | Area Sources - Summer Weekday | | EBCDIC | 7-9 |
| N | | Area Sources - Summer Saturday | | EBCDIC | 7-9 |
| O | | Area Sources - Summer Sunday | | EBCDIC | 7-9 |
| P | | Area Sources - Fall Weekday | | EBCDIC | 7-9 |
| Q | | Area Sources - Fall Saturday | | EBCDIC | 7-9 |
| R | | Area Sources - Fall Sunday | | EBCDIC | 7-9 |
| S | 5.3 | Point Sources | Hourly | EBCDIC | 7-10 |
| T | | ** Area Sources - Winter Weekday | | EBCDIC | 7-11 |
| U | | Area Sources - Winter Saturday | | EBCDIC | 7-11 |
| V | | Area Sources - Winter Sunday | | EBCDIC | 7-11 |
| W | | Area Sources - Spring Weekday | | EBCDIC | 7-11 |
| X | | Area Sources - Spring Saturday | | EBCDIC | 7-11 |
| Y | | Area Sources - Spring Sunday | | EBCDIC | 7-11 |
| Z | | Area Sources - Summer Weekday | | EBCDIC | 7-11 |
| AA | | Area Sources - Summer Saturday | | EBCDIC | 7-11 |
| BB | | Area Sources - Summer Sunday | | EBCDIC | 7-11 |
| CC | | Area Sources - Fall Weekday | | EBCDIC | 7-11 |
| DD | | Area Sources - Fall Saturday | | EBCDIC | 7-11 |
| EE | | Area Sources - Fall Sunday | | EBCDIC | 7-11 |

* This data set spans three tapes.

** 5.2 and 5.3 Area Source data sets each span two tapes, and are divided at 100°W longitude.

TABLE 7-6. VERSION 5.0, U.S. AND CANADIAN POINT SOURCES (SAS AND EBCDIC FORMAT)

| Start (EBCDIC) | End (EBCDIC) | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 1 | 2 | N2 | STATE | NEDS State Code |
| 3 | 6 | N4 | COUNTY | NEDS County Code |
| 7 | 9 | N3 | AQCR | Air Quality Control Region Code |
| 10 | 13 | A4 | PLANT_ID | NEDS Plant ID Code |
| 14 | 18 | N5 | TRDATE | Date of Transaction Information (YYDDD) |
| 19 | 21 | A3 | UCONREG | User Control Region |
| 22 | 23 | A2 | LCONREG | Under Jurisdiction of Another UCONREG |
| 24 | 35 | A12 | UPLANTID | User Plant ID |
| 36 | 39 | N4 | CITY | NEDS City Code |
| 40 | 41 | N2 | UTM_ZONE | UTM Zone |
| 42 | 42 | A1 | OWNER | Ownership Code (P-Private, L-Local Gov., S-State Gov., F-Federal Gov., U-Utility) |
| 43 | 57 | A15 | CONTACT | Person Responsible for Pollution Control |
| 58 | 67 | N10 | PHONE | Telephone Number of Contact |
| 68 | 77 | A10 | PRIPROD | Principal Product Produced at Plant |
| 78 | 125 | A48 | NAMEADD | Plant Name and Mailing Address |
| 126 | 129 | N4 | NUMEMP | Number of Employees |
| 130 | 136 | N7 | PROPAREA | Area, in Acres, of Facility Land |
| 137 | 184 | A48 | MAIL | Contact Mailing Address |
| 185 | 185 | A1 | NEDP1 | NEDS P1 Card Flag |
| 186 | 237 | A52 | NEDPLCOM | NEDS P7 Plant Comment |
| 238 | 238 | A1 | NEDPLCAR | NEDS P7 Plant Card Flag |
| 239 | 240 | A2 | POINT_ID | NEDS Point ID |
| 241 | 243 | A3 | UPOINTID | User Point ID |
| 244 | 247 | N4 | SIC | Standard Industrial Classification Code |
| 248 | 249 | N2 | IPP | NEDS Implementation Planning Process Code |
| 250 | 254 | N5 | UTMX | UTM Horizontal Coordinate |
| 255 | 260 | N6 | UTMY | UTM Vertical Coordinate |
| 261 | 262 | N2 | LAT_DEG | Degrees Latitude |
| 263 | 264 | N2 | LAT_MIN | Minutes Latitude |
| 265 | 266 | N2 | LAT_SEC | Seconds Latitude |
| 267 | 269 | N3 | LON_DEG | Degrees Longitude |
| 270 | 271 | N2 | LON_MIN | Minutes Longitude |
| 272 | 273 | N2 | LON_SEC | Seconds Longitude |
| 274 | 275 | N2 | WINTHRU | Winter Thruput % |
| 276 | 277 | N2 | SPRTHRU | Spring Thruput % |
| 278 | 279 | N2 | SUMTHRU | Summer Thruput % |
| 280 | 281 | N2 | FALTHRU | Fall Thruput % |
| 282 | 283 | N2 | HOURS | Hours per Day in Operation |
| 284 | 284 | N1 | DAYS | Days per Week in Operation |
| 285 | 286 | N2 | WEEKS | Weeks per Year in Operation |

(continued)

TABLE 7-6 (continued)

| Start | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| (EBCDIC) | | | | |
| 287 | 291 | N5 | BOILCAP | Boiler Design Capacity, Million Btu per Hour |
| 292 | 295 | N4 | SPHEAT | Percent of Fuel Used for Space Heating |
| 296 | 299 | N4 | STACK_HT | Stack Height, ft |
| 300 | 303 | N4 | STACK_DI | Stack Diameter, ft |
| 304 | 307 | N4 | STACK_TP | Stack Temperature, Degrees F |
| 308 | 314 | N7 | FLOW | Exhaust Flow Rate, CFM |
| 315 | 319 | N5 | VELOCITY | Velocity, ft per second |
| 320 | 323 | N4 | PLUME_HT | Plume Height, ft |
| 324 | 327 | A4 | PTSCOMST | Range of Points Using Common Stack |
| 328 | 328 | A1 | NEDP2 | NEDS P2 Card Flag |
| 329 | 329 | A1 | NEDP3 | NEDS P3 Card Flag |
| 330 | 330 | A1 | NEDP4 | NEDS P4 Card Flag |
| 331 | 331 | A1 | NEDP5 | NEDS P5 Card Flag |
| 332 | 332 | A1 | PWCS | PWCS NEDS Flag |
| 333 | 384 | A52 | NEDPTCOM | NEDS P7 Point Comment |
| 385 | 385 | A1 | NEDPTCAR | NEDS P7 Point Card Flag |
| 386 | 393 | N8 | EISSCC | SCC-Source Classification Code |
| 394 | 395 | N2 | NUMSCC | SCC Sequence Number |
| 396 | 400 | N5 | BEC | BEC-Basic Equipment Classification Code |
| 401 | 401 | A1 | FUNITS | Fuel Units (Not Used) |
| 402 | 408 | N7 | THRUPUT | Fuel Process Rate (Thruput)-Ann. Operating Rate |
| 409 | 416 | N8 | MAXRATE | Maximum Hourly Design Rate |
| 417 | 420 | N4 | SCON | Sulfur Content Percent |
| 421 | 424 | N4 | ASHCON | Ash Content |
| 425 | 429 | N5 | HEATCON | Heat Content in Millions of Btu |
| 430 | 430 | N1 | CONFID | Confidentiality (1-Yes, 2-No) |
| 431 | 431 | A1 | SCECODE | SCC Process Category (B-Boiler, P-Process, C-Other Combustion, S-Solid Waste) |
| 432 | 456 | A25 | SCEDESC | Source Description |
| 457 | 457 | A1 | EMFORIG | Emission Factor Origin (F-Federal, S-State, L-Local) |
| 458 | 458 | A1 | NEDP6 | NEDS P6 Card Flag |
| 459 | 510 | A52 | NEDSCCOM | NEDS P7 SCC Comment |
| 511 | 511 | A1 | NEDSCCAR | NEDS P7 Card Flag |
| 512 | 513 | N2 | NUMPOLL | Number of Pollutants |
| 514 | 518 | N5 | SAROAD1-15 | Pollutant ID |
| 519 | 521 | N3 | CONPRI1-15 | Primary Control Equipment |
| 522 | 524 | N3 | CONSEC1-15 | Secondary Control Equipment |
| 525 | 528 | N4 | CONEFF1-15 | Estimated Control Efficiency Percent |

(continued)

TABLE 7-6 (continued)

| Start (EBCDIC) | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 529 | 529 | N1 | ESTMET1-15 | Estimation Method Used to Ascertain Estimated Emissions (0-Not Applicable, 1-Stack Test, 2-Material Balance, 3-Emission Factor, 4-Guess, 5-Special EMF, 6-New Construction, 7-Facility Closed) |
| 530 | 538 | A9 | EMF1-15 | Emission Factor |
| 539 | 539 | A1 | ASCODE1-15 | Ash-Sulfur Code |
| 540 | 540 | N1 | EMFUNI1-15 | EMF Units |
| 541 | 547 | N7 | EMISS1-15 | Apportioned Emissions in tons/year |

NOTE: Columns 514 to 547 may be repeated 'NUMPOLL' (up to 15) times, once for each pollutant.

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

TABLE 7-7. VERSION 5.0, U.S. AND CANADIAN AREA SOURCES (SAS AND EBCDIC FORMAT)

| Start (EBCDIC) | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 1 | 2 | N2 | STATE | NEDS State Code |
| 3 | 6 | N4 | COUNTY | NEDS County Code |
| 7 | 9 | N3 | AQCR | Air Quality Control Region Code |
| 10 | 29 | A20 | AREANAME | County Name or Geographical Area |
| 30 | 31 | N2 | POPRURAL | Rural Population Percentage |
| 32 | 39 | N8 | POP | Population |
| 40 | 93 | A54 | AQCRNAME | AQCR Name |
| 94 | 97 | N4 | SCONA | Sulfur Content - Anthracite Coal |
| 98 | 101 | N4 | SCONB | Sulfur Content - Bituminous Coal |
| 102 | 105 | N4 | SCOND | Sulfur Content - Distillate Oil |
| 106 | 109 | N4 | SCONR | Sulfur Content - Residual Oil |
| 110 | 114 | N5 | ASHCONA | Ash Content - Anthracite Coal |
| 115 | 119 | N5 | ASHCONB | Ash Content - Bituminous Coal |
| 120 | 120 | A1 | SOURCE | Source Type (L-Line or Link, A-Area) |
| 121 | 128 | N8 | LENAREA | Length of Line Source or Area of Area Source |
| 129 | 130 | A2 | LAUNITS | Units Code for Length or Area |
| 131 | 135 | N5 | TSPSIP | TSP SIP Estimate (X100 tons/year) |
| 136 | 139 | N4 | SO2SIP | $SO_2$ SIP Estimate (X100 tons/year) |
| 140 | 143 | N4 | NOXSIP | $NO_x$ SIP Estimate (X100 tons/year) |
| 144 | 148 | N5 | HCSIP | Hydrocarbon SIP Estimate (X100 tons/year) |
| 149 | 152 | N4 | COSIP | CO SIP Estimate (X100 tons/year) |
| 153 | 159 | N7 | GFLV | Gas Fuel Consumed by Light Vehicles (X1000 gal) |
| 160 | 165 | N6 | GFHV | Gas Fuel Consumed by Heavy Vehicles (X1000 gal) |
| 166 | 171 | N6 | DFHV | Diesel Fuel Consumed by Heavy Vehicles (X1000 gal) |
| 172 | 177 | N6 | MVMLAR | Motor Vehicle Miles for Limited Access Roads |
| 178 | 183 | N6 | MVMRR | Motor Vehicle Miles for Rural Roads |
| 184 | 189 | N6 | MVMSR | Motor Vehicle Miles for Suburban Roads |
| 190 | 195 | N6 | MVMUR | Motor Vehicle Miles for Urban Roads |
| 196 | 200 | N5 | EISSCC | Area Source Category Number |
| 201 | 202 | N2 | DISAGG | Category Disaggregation Number |
| 203 | 227 | A25 | CATDESC | Category Description |
| 228 | 229 | N2 | CATYEAR | Year of Information |
| 230 | 238 | A9 | THRUPUT | Annual Process Rate (Thruput) |
| 239 | 245 | A7 | CATADJ | Category Adjustment Value |
| 246 | 247 | A2 | UCODE | Units Code for Annual Thruput |
| 248 | 259 | A12 | UDESC | Units Code Description |
| 260 | 260 | A1 | UNITHRU | Uniform Monthly Thruput Indicator (Y or N) |
| 261 | 284 | 12(N2) | MTHRU1-12 | Monthly Thruput Percentage (1-Jan, 2-Feb..) |
| 285 | 286 | N2 | HOURS | Hours Per Day |

(continued)

TABLE 7-7 (continued)

| Start (EBCDIC) | End (EBCDIC) | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 287 | 287 | N1 | DAYS | Days Per Week |
| 288 | 289 | N2 | WEEKS | Weeks Per Year |
| 290 | 294 | N5 | THRURAT | Thruput Ratio |
| 295 | 305 | N11 | MAXTHRU | Maximum Hourly Thruput |
| 306 | 306 | N1 | CONFRATE | Data Confidence Rating |
| 307 | 310 | N4 | NCON | Nitrogen Content (Weight Percentage) |
| 311 | 313 | N3 | SCON | Sulfur Content (Weight Percentage) |
| 314 | 317 | N4 | ASHCON | Ash Content (Weight Percentage) |
| 318 | 321 | N4 | HEATCON | Heat Content (Percent 1 Million Btu) |
| 322 | 322 | A1 | HOURTHRU | Uniform Hourly Thruput (Y or N) |
| 323 | 370 | 24(N2) | HTHRU1-24 | Hourly Thruput Percentages |
| 371 | 372 | N2 | NUMPOLL | Number of Category Record Pollutants |
| 373 | 377 | N5 | SAROAD1-15 | Pollutant ID |
| 378 | 388 | N11 | EMF1-15 | Emission Factor |
| 389 | 389 | A1 | EMFCR1-15 | Emission Factor Confidence Rating |
| 390 | 390 | A1 | EMFSC1-15 | Emission Factor Source Code |
| 391 | 391 | A1 | EMFORI1-15 | Emission Factor Origin (F-Fed., S-St., L-Loc.) |
| 392 | 401 | A10 | PSD1-15 | Pollutant Specific Data |
| 402 | 408 | N7 | EMINED1-15 | NEDS A7 Emissions (tons/year) |
| 409 | 423 | A15 | NAME1-15 | Pollutant Name |
| 424 | 424 | A1 | EIS5C1-15 | EIS Category 5 Card Flag |
| 425 | 431 | N7 | EMISS1-15 | Emissions Estimate (tons/year) |
| 432 | 432 | A1 | CONRAT1-15 | Confidence Rating |
| 433 | 438 | A6 | EMIMAX1-15 | Maximum Hourly Emissions |

NOTE: Columns 373 to 438 may be repeated 'NUMPOLL'(up to 15) times, once for each pollutant.

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

TABLE 7-8. VERSION 5.2, POINT SOURCES (SAS* AND EBCDIC FORMAT)

| Start (EBCDIC) | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 1 | 8 | N8 | EISSCC | SCC Code |
| 9 | 10 | N2 | STATE | State Code |
| 11 | 14 | N4 | COUNTY | County Code |
| 15 | 18 | A4 | PLANT_ID | Plant Identification Code |
| 19 | 20 | A2 | POINT_ID | Point Identification Code |
| 21 | 24 | N4 | AQCR | Air Quality Control Region |
| 25 | 28 | N4 | EISSIC | SIC Code |
| 29 | 30 | A2 | SOURCE | Source Type |
| 31 | 40 | N10 | LAT | Fractional Latitude |
| 41 | 50 | N10 | LON | Fractional Longitude |
| 51 | 54 | N4 | COL | Grid Column |
| 55 | 58 | N4 | ROW | Grid Row |
| 59 | 59 | N1 | ZONE | Time Zone Offset |
| 60 | 60 | N1 | DAYLITE | Daylight Savings Flag |
| 61 | 67 | N7 | FLOW | Exhaust Gas Flow Rate ($ft^3$/min) |
| 68 | 71 | N4 | PLUME_HT | Plume Height (ft) |
| 72 | 75 | N4 | STACK_DI | Stack Diameter (ft) |
| 76 | 79 | N4 | STACK_HT | Stack Height (ft) |
| 80 | 83 | N4 | STACK_TP | Stack Temperature (F) |
| 84 | 88 | N5 | VELOCITY | Stack Gas Velocity |
| 89 | 93 | N5 | HCHOWT | Aldehyde and Methane Speciation Adjustment |
| 94 | 95 | N2 | REC_DATE | Year of Emission Record |
| 96 | 97 | N2 | NUMPOLL | Number of EIS Pollutants |
| 98 |  | N5 | SAROAD1-15 | SAROAD Code of EIS Pollutant |
|  |  | N7 | EMISS1-15 | Emissions (tons/year) of EIS Pollutant |

NOTE: SAROAD and EMISS will be repeated NUMPOLL (up to 15) times, once for each pollutant.

| Start (EBCDIC) | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
|  |  | N2 | NUM_DAY | Number of Temporal Factor Sets in Record |
|  |  | N4 | SEA1-12 | Seasonal Temporal Allocation Factor |
|  |  | N5 | DAY1-12 | Daily Temporal Allocation Factor |
|  |  | N4 | HOUR1-288 | Hourly Temporal Allocation Factors |

NOTE: For EBCDIC files, each seasonal allocation factor is directly followed by its corresponding daily and 24 hourly factors; this sequence is repeated for each of the 12 NAPAP temporal scenarios. In the SAS data set, HOUR1-24 corresponds to the hourly factors for scenario 1, HOUR25-48 to scenario 2, and so on. All hourly factors for point sources are expressed in local time.

(continued)

TABLE 7-8 (continued)

| Start | End | Format | Variable | Description |
|---|---|---|---|---|
| (EBCDIC) | | | (SAS) | |
| | | N3 | NUMSP | Number of Speciation Factors |
| | | 37(N5) | CAT1-37 | Major Pollutant SAROAD of Species |
| | | 37(N5) | CLASS1-37 | SAROAD Code of Pollutant Species |
| | | 37(N5) | SF1-37 | Speciation Factor of Species/100 |
| | | NOTE: | CAT, CLASS and SF are repeated 37 times, once for each species. | |
| | | N4 | CONEFF1-15 | Control Efficiency of Point Pollutant |
| | | N1 | ESTMET1-15 | Estimation Method Used for Point Pollutant |
| | | NOTE: | CONEFF and ESTMET will be repeated NUMPOLL (up to 15) times, once for each pollutant. | |

*SAS-formatted files contain two additional variables: SAF (the spatial allocation fraction) and MAJOR (the major pollutant source flag); both are equal to 1 for point sources.

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

TABLE 7-9. VERSION 5.2, AREA SOURCES (SAS AND EBCDIC FORMAT)

| Start (EBCDIC) | End (EBCDIC) | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 1 | 4 | N4 | COL | Grid Column |
| 5 | 8 | N4 | ROW | Grid Row |
| 9 | 10 | N2 | GMT | Hour (Greenwich Mean Time) |
| 11 | 20 | E10 | TOT1 | $SO_2$ Emissions (tons/hour) |
| 21 | 30 | E10 | TOT2 | $SO_4$ Emissions (tons/hour) |
| 31 | 40 | E10 | TOT3 | TSP Emissions (tons/hour) |
| 41 | 50 | E10 | TOT4 | Pb Emissions (tons/hour) |
| 51 | 60 | E10 | TOT5 | CO Emissions (tons/hour) |
| 61 | 70 | E10 | TOT6 | HCl Emissions (tons/hour) |
| 71 | 80 | E10 | TOT7 | HF Emissions (tons/hour) |
| 81 | 90 | E10 | TOT8 | $NO_x$ Emissions (tons/hour) |
| 91 | 100 | E10 | TOT9 | $NH_3$ Emissions (tons/hour) |
| 101 | 110 | E10 | TOT10 | VOC Emissions (tons/hour) |
| 111 | 120 | E10 | TOT11 | Total HC Emissions (tons/hour) |
| 121 | 130 | E10 | TOT12 | Methane Emissions (moles/hour) |
| 131 | 140 | E10 | TOT13 | Ethane Emissions (moles/hour) |
| 141 | 150 | E10 | TOT14 | Propane Emissions (moles/hour) |
| 151 | 160 | E10 | TOT15 | n-Butane Emissions (moles/hour) |
| 161 | 170 | E10 | TOT16 | iso-Butane Emissions (moles/hour) |
| 171 | 180 | E10 | TOT17 | 2,3-Dimethylbutane Emissions (moles/hour) |
| 181 | 190 | E10 | TOT18 | Pentane Emissions (moles/hour) |
| 191 | 200 | E10 | TOT19 | iso-Pentane Emissions (moles/hour) |
| 201 | 210 | E10 | TOT20 | Other Alkanes Emissions (moles/hour) |
| 211 | 220 | E10 | TOT21 | Ethylene Emissions (moles/hour) |
| 221 | 230 | E10 | TOT22 | Propylene Emissions (moles/hour) |
| 231 | 240 | E10 | TOT23 | (Not used) |
| 241 | 250 | E10 | TOT24 | iso-Butene Emissions (moles/hour) |
| 251 | 260 | E10 | TOT25 | trans-2-Butene Emissions (moles/hour) |
| 261 | 270 | E10 | TOT26 | Other Alkenes Emissions (moles/hour) |
| 271 | 280 | E10 | TOT27 | Benzene Emissions (moles/hour) |
| 281 | 290 | E10 | TOT28 | Toluene Emissions (moles/hour) |
| 291 | 300 | E10 | TOT29 | Xylenes Emissions (moles/hour) |
| 301 | 310 | E10 | TOT30 | Ethyl Benzenes Emissions (moles/hour) |
| 311 | 320 | E10 | TOT31 | Other Aromatics Emissions (moles/hour) |
| 321 | 330 | E10 | TOT32 | Formaldehyde Emissions (moles/hour) |
| 331 | 340 | E10 | TOT33 | Acetaldehyde Emissions (moles/hour) |
| 341 | 350 | E10 | TOT34 | Propionaldehyde Emissions (moles/hour) |
| 351 | 360 | E10 | TOT35 | Other Aldehydes Emissions (moles/hour) |
| 361 | 370 | E10 | TOT36 | Acetone Emissions (moles/hour) |
| 371 | 380 | E10 | TOT37 | Other Ketones Emissions (moles/hour) |
| 381 | 390 | E10 | TOT38 | Formic Acid Emissions (moles/hour) |
| 391 | 400 | E10 | TOT39 | Acetic Acid Emissions (moles/hour) |
| 401 | 410 | E10 | TOT40 | Other Organic Acids Emissions (moles/hour) |
| 411 | 420 | E10 | TOT41 | NO Emissions (tons/hour) |
| 421 | 430 | E10 | TOT42 | $NO_2$ Emissions (tons/hour) |

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

TABLE 7-10. VERSION 5.3, POINT SOURCES (SAS* AND EBCDIC FORMAT)

| Start | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| (EBCDIC) | | | | |
| 1 | 8 | N8 | EISSCC | SCC Code |
| 9 | 10 | N2 | STATE | State Code |
| 11 | 14 | N4 | COUNTY | County Code |
| 15 | 18 | A4 | PLANT_ID | Plant Identification Code |
| 19 | 20 | A2 | POINT_ID | Point Identification Code |
| 21 | 24 | N4 | AQCR | Air Quality Control Region |
| 25 | 28 | N4 | EISSIC | SIC Code |
| 29 | 30 | A2 | SOURCE | Source Code |
| 31 | 40 | N10 | LAT | Fractional Latitude |
| 41 | 50 | N10 | LON | Fractional Longitude |
| 51 | 54 | N4 | COL | Grid Column |
| 55 | 58 | N4 | ROW | Grid Row |
| 59 | 59 | N1 | ZONE | Time Zone Offset |
| 60 | 60 | N1 | DAYLITE | Daylight Savings Flag |
| 61 | 67 | N7 | FLOW | Exhaust Gas Flow Rate (ft$^3$/min) |
| 68 | 71 | N4 | PLUME_HT | Plume Height (ft) |
| 72 | 75 | N4 | STACK_DI | Stack Diameter (ft) |
| 76 | 79 | N4 | STACK_HT | Stack Height (ft) |
| 80 | 83 | N4 | STACK_TP | Stack Temperature (F) |
| 84 | 88 | N5 | VELOCITY | Stack Gas Velocity |
| 89 | 93 | N5 | HCHOWT | Aldehyde and Methane Speciation Adjustment |
| 94 | 95 | N2 | REC_DATE | Year of Emission Record |
| 96 | 97 | N2 | NUMPOLL | Number of EIS Pollutants |
| 98 | | N5 | SAROAD1-15 | SAROAD Code of EIS Pollutant |
| | | N7 | EMISS1-15 | Emissions (tons/year) of EIS Pollutant |

NOTE: SAROAD and EMISS will be repeated NUMPOLL (up to 15) times.

| | | | | |
|---|---|---|---|---|
| | | N2 | NUM_DAY | Number of Temporal Factor Sets in Record |
| | | N4 | SEA1-12 | Seasonal Temporal Allocation Factor |
| | | N5 | DAY1-12 | Daily Temporal Allocation Factor |
| | | N4 | HOUR1-288 | Hourly Temporal Allocation Factors |

NOTE: For EBCDIC files, each seasonal allocation factor is directly followed by its corresponding daily and 24 hourly factors; this sequence is repeated for each of the 12 NAPAP temporal scenarios. In the SAS data set, HOUR1-24 corresponds to the hourly factors for scenario 1, HOUR25-48 to scenario 2, and so on. All hourly factors for point sources are expressed in local time.

(continued)

TABLE 7-10 (continued)

| Start End (EBCDIC) | Format | Variable (SAS) | Description |
|---|---|---|---|
| | N3 | NUMSP | Number of Speciation Factors |
| | 17(N5) | CAT1-17 | Major Pollutant SAROAD of Species |
| | 17(N5) | CLASS1-17 | SAROAD Code of Pollutant Species |
| | 17(N5) | SF1-17 | Speciation Factor of Species |

NOTE: CAT, CLASS and SF are repeated 17 times, once for each species.

| Start End (EBCDIC) | Format | Variable (SAS) | Description |
|---|---|---|---|
| | N4 | CONEFF1-15 | Control Efficiency of Point Pollutant |
| | N1 | ESTMET1-15 | Estimation Method Used for Point Pollutant |

NOTE: CONEFF and ESTMET will be repeated NUMPOLL (up to 15) times.

---

*SAS-formatted files contain two additional variables: SAF (the spatial allocation fraction) and MAJOR (the major pollutant source flag); both are equal to 1 for point sources.

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

TABLE 7-11. VERSION 5.3, AREA SOURCES (SAS AND EBCDIC FORMAT)

| Start (EBCDIC) | End | Format | Variable (SAS) | Description |
|---|---|---|---|---|
| 1 | 4 | N4 | COL | Grid Column |
| 5 | 8 | N4 | ROW | Grid Row |
| 9 | 10 | N2 | GMT | Hour (Greenwich Mean Time) |
| 11 | 20 | E10 | TOT1 | $SO_2$ Emissions (tons/hour) |
| 21 | 30 | E10 | TOT2 | $SO_4$ Emissions (tons/hour) |
| 31 | 40 | E10 | TOT3 | TSP Emissions (tons/hour) |
| 41 | 50 | E10 | TOT4 | Pb Emissions (tons/hour) |
| 51 | 60 | E10 | TOT5 | CO Emissions (tons/hour) |
| 61 | 70 | E10 | TOT6 | HCl Emissions (tons/hour) |
| 71 | 80 | E10 | TOT7 | HF Emissions (tons/hour) |
| 81 | 90 | E10 | TOT8 | $NO_x$ Emissions (tons/hour) |
| 91 | 100 | E10 | TOT9 | $NH_3$ Emissions (tons/hour) |
| 101 | 110 | E10 | TOT10 | VOC Emissions (tons/hour) |
| 111 | 120 | E10 | TOT11 | Total HC Emissions (tons/hour) |
| 121 | 130 | E10 | TOT12 | Olefin Emissions (moles/hour) |
| 131 | 140 | E10 | TOT13 | Paraffin Emissions (moles/hour) |
| 141 | 150 | E10 | TOT14 | Toluene Emissions (moles/hour) |
| 151 | 160 | E10 | TOT15 | Xylene Emissions (moles/hour) |
| 161 | 170 | E10 | TOT16 | Formaldehyde Emissions (moles/hour) |
| 171 | 180 | E10 | TOT17 | Other Aldehyde Emissions (moles/hour) |
| 181 | 190 | E10 | TOT18 | Ethylene Emissions (moles/hour) |
| 191 | 200 | E10 | TOT19 | Nonreactive Emissions (moles/hour) |
| 201 | 210 | E10 | TOT20 | Isoprene Emissions (moles/hour |
| 211 | 220 | E10 | TOT21 | Methane Emissions (moles/hour) |
| 221 | 230 | E10 | TOT22 | NO Emissions (tons/hour) |
| 231 | 240 | E10 | TOT23 | $NO_2$ Emissions (tons/hour) |

Start/End positions refer to EBCDIC files; variables in SAS data sets are referenced by name.

# REFERENCES

Benkovitz, C. Framework for Uncertainty Analysis of the NAPAP Emissions Inventory. EPA-600/7-85-036 (NTIS PB86-112570), September 1985.

Electric Power Research Institute. The EPRI Regional Systems, EPRI P-1950-SR. Palo Alto, CA, 1981.

Engineering-Science. Emissions Inventories for Urban Airshed Model. McLean, VA, 1981.

Haupt, S. E., F. M. Sellars, M. J. Geraghty, A. M. Kiddie, and B. J. Bosy. 1982: Northeast Corridor Regional Modeling Project Annual Emission Inventory Compilation and Formatting--Volume X--Ohio Emission Inventory, U.S. EPA, EPA-450/4-82-013j. Washington, DC, 1982.

Klemm, H. A. and R. J. Brennan. Emissions Inventory for the SURE Region. GCA/Technology Division for the Electric Power Research Institute, EA-1913. Palo Alto, CA, 1981.

Lebowitz, L. G. and A. S. Ackerman. Flexible Regional Emissions Data System (FREDS) Documentation for the 1980 NAPAP Emissions Inventory. Draft Final Report. Prepared for the U.S. Environmental Protection Agency, Contract Nos. 68-02-3997 and 68-02-4274. U.S. EPA Research Triangle Park, NC. August 1987.

MEP Company and Ontario Research Foundation. Temporal Factors for 1980 National Anthropogenic Area Source Emissions. Supply and Services Canada. Ottawa, Ontario, Canada, 1985.

New Jersey Department of Environmental Protection. Emission Inventory--State of New Jersey, Trenton, NJ, 1980.

New York Department of Environmental Conservation. Emission Inventory--State of New York, Metropolitan New York Region, Albany, NY, 1980.

Pechan, 1985: E.H. Pechan & Associates, Inc., "Electric Utility Unit Inventory: Database Technical Documentation", prepared for University of Illinois at Urbana Champaign, May 1983.

Pechan, 1983: E.H. Pechan & Associates, Inc., "Electric Utility Unit Inventory: Database Technical Documentation", prepared for University of Illinois at Urbana Champaign, May 1983.

PEDCo, 1981: PEDCo Environmental, Inc., "FGDIS Primer", prepared for U.S. Environmental Protection Agency, May 1981.

Preliminary Concepts and Issues Concerning Development of a Data Base of Uncertainty Estimates for Man-Made Sources Task Group. MITRE Working Paper WP-84W485, December 1984.

Roth, Ron. Personal communication. Mr. Roth, of the American Trucking Association (ATA), supplied information on ATA estimates of truck movements in a telephone communication on 30 May 1985.

Sellars, F. M., M. J. Geraghty, A. M. Kiddie, and B. J. Bosy. 1982a. Northeast Corridor Regional Modeling Project Annual Emission Inventory Compilation and Formatting--Volume III--Delaware Emission Inventory. U.S. EPA, EPA-450/4-82-013a. Washington, DC, 1982.

Sellars, F. M., M. J. Geraghty, A. M. Kiddie, and B. J. Bosy. 1982b. Northeast Corridor Regional Modeling Project Annual Emission Inventory Compilation and Formatting--Volume VII--New Hampshire Emission Inventory. U.S. EPA, EPA-450/4-82-013g. Washington, DC, 1982.

Sellars, F. M., M. J. Geraghty, A. M. Kiddie, and B. J. Bosy. 1982c. Northeast Corridor Regional Modeling Project Annual Emission Inventory Compilation and Formatting--Volume XIV--Virginia Emission Inventory. U.S. EPA, EPA-450/4-82-013n. Washington, DC, 1982.

Sellars, F. M., M. J. Geraghty, A. M. Kiddie, B. J. Bosy, and S. V. Capone. 1982d. The Northeast Corridor Regional Modeling Project Annual Emission Inventory Compilation and Formatting--Volume XVII--Development of Temporal, Spatial, and Species Allocation Factors. U.S. EPA, EPA-450/4-82-013q. Washington, DC, 1982.

Sellars, F. M., T. E. Fitzgerald, Jr., J. M. Lennon, L. J. Maiocco, N. M. Monzione, and D. R. Neal, Jr. National Acid Precipitation Assessment Program Emission Inventory Allocation Factors, U.S. EPA, EPA-600/7-85-035 (NTIS PB86-104247), Research Triangle Park, NC, September 1985.

Smith, W. T. and T. L. Kelly. PSPLIT Programmer's Guide. Prepared for U.S. EPA, Office of Research and Development, Environmental Sciences Research Laboratory, Research Triangle Park, NC, 1984.

Toothman, Douglas A., John C. Yates, and J. Sabo. "Status Report on the Development of the NAPAP Emission Inventory for the 1980 Base Year and Summary of Preliminary Data", EPA-600/7-84-091, (NTIS PB85-167930), Research Triangle Park, NC, December 1984.

U.S. Civil Aeronautics Board. Seasonally Adjusted Traffic and Capacity, Washington, DC, 1981.

U.S. Department of Commerce. Local Climatological Data Published Stations (1980 data), National Climatic Data Center, National Oceanic and Atmospheric Administration, Asheville, NC, 1980.

U.S. Department of Commerce. State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population (1980 Census) Historical Climatology Series 5-1. National Oceanic and Atmospheric Administration. Asheville, NC, 1983.

U.S. Department of Energy. Energy Data Reports, Washington, DC, 1979.

U.S. Department of Energy, 1980a: U.S. Department of Energy, "Monthly Power Plant Report", EIA-759 data file, 1980.

U.S. Department of Energy, 1980b: U.S. Department of Energy, "Steam-Electric Plant Operation and Design Report", EIA-767 data file, 1980.

U.S. Department of Energy, 1981a: U.S. Department of Energy, "Cost and Quality of Fuels for Electric Utility Plants", DOE/EIA-0075(80), May 1981.

U.S. Department of Energy, 1981b: U.S. Department of Energy, "Inventory of Power Plants in the United States: December 1980", DOE/EIA-0095(80), June 1981.

U.S. Department of Energy, 1983: U.S. Department of Energy, "Cost and Quality of Fuels for Electric Utility Plants: 1982 Annual", DOE/EIA-019(82), August 1983.

U.S. Department of Energy, 1984a. Petroleum Marketing Monthly, Energy Information Service, Washington, DC, 1984.

U.S. Department of Energy, 1984b: U.S. Department of Energy, "Cost and Quality of Fuels for Electric Utility Plants 1983", DOE/EIA-019(83), July 1984.

U.S. Department of Labor. Supplement of Employment and Earnings: Revised Establishment Data, Bureau of Labor Statistics, Washington, DC, 1981.

U.S. Department of Transportation. Highway Statistics, 1980, Federal Highway Administration, Washington, DC, 1980.

U.S. Environmental Protection Agency. Regional Air Pollution Study: Off-Highway Mobile Source Emission Inventory, EPA-600/4-77-041 (NTIS PB273503), Research Triangle Park, NC, 1977.

U.S. Environmental Protection Agency, 1979a. Documentation of the Regional Air Pollution Study (RAPS) and Related Investigations in the St. Louis Air Quality Control Region, EPA-600/4-79-076 (NTIS PB80-138241), Research Triangle Park, NC, 1979.

U.S. Environmental Protection Agency, 1979b. Procedures for the Preparation of Emission Inventories for Volatile Organic Compounds; Volume II--Emission Inventory Requirements for Photochemical Air Quality Simulation Models, EPA-450/4-79-018 (NTIS PB80-202229), Research Triangle Park, NC, 1979.

U.S. Environmental Protection Agency, 1980a. Emission Inventories for Urban Airshed Model Application in Tulsa, Oklahoma, EPA-450/4-80-021 (NTIS PB81-156986), Research Triangle Park, NC, 1980.

U.S. Environmental Protection Agency, 1980b. $NO_x$ Control Review, Vol. 5, No. 1, Research Triangle Park, NC, Winter 1980.

U.S. Environmental Protection Agency, "The Comprehensive Data Handling System (CDHS) Coding Manual", EPA-450/4-81-009, February 1981.

U.S. Environmental Protection Agency. Compilation of Air Pollutant Emission Factors, Fourteenth Edition, AP-42, (Government Printing Office Stock Numbers 055-000-00251-7, Volume 1 and 055-000-00252-5, Volume 2), Research Triangle Park, NC, November 1985.

Welty, Kenneth. Personal Communication. Mr. Welty supplied traffic statistics compiled by the Highway Statistics Division, Federal Highway Administration, U.S. Department of Transportation, on a diskette formatted for use on an IBM Personal Computer. This data was analyzed with FORTRAN software designed specifically to calculate temporal allocation factors in the format required by the FREDS system.

Work Group 3B Emissions Cost and Engineering Assessment, United States-Canada Memorandum of Intent on Transboundary Air Pollution, June 1982.

# APPENDIX A

## DETAILED EMISSIONS SUMMARIES

The emissions data contained in Versions 5.0 and 5.2 of the NAPAP Emissions Inventory are summarized at various levels of aggregation in the following pages. Tables A-1 and A-2 are provided below to facilitate the location of individual listings.

The Version 5.0 inventory includes 11 major pollutants; emissions of these materials are reported in tons as well as metric tons. Tables are also presented in thousands of moles for hydrocarbon species in Version 5.2.

Certain pollutants' emissions are slightly lower in the 5.2 inventory than in the 5.0 inventory. Some Canadian point sources, for example, were found to lie outside of the NAPAP study area and were not accepted by the FREDS Spatial Allocation Module. These differences are negligible on a percentage basis, usually amounting to significantly less than 1 percent of total emissions.

## TABLE A-1. KEY TO TABLES, 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0

| National coverage | Source type | Level of resolution | Hydrocarbon classes ? | Units | Page |
|---|---|---|---|---|---|
| U.S. | Area | SCC | No | Tons | A-4 - A-5 |
| | | | | Metric Tons | A-6 - A-7 |
| | | State | No | Tons | A-8 |
| | | | | Metric Tons | A-9 |
| | | Region | No | Tons | A-10 |
| | | | | Metric Tons | A-10 |
| | Point | SCC | No | Tons | A-11 - A-17 |
| | | | | Metric Tons | A-18 - A-24 |
| | | State | No | Tons | A-25 |
| | | | | Metric Tons | A-26 |
| | | Region | No | Tons | A-27 |
| | | | | Metric Tons | A-27 |
| | Area & Point | State | No | Tons | A-28 |
| | | | | Metric Tons | A-29 |
| | | Region | No | Tons | A-30 |
| | | | | Metric Tons | A-30 |
| Canada | Area | SCC | No | Tons | A-31 - A-33 |
| | | | | Metric Tons | A-34 - A-36 |
| | | Province | No | Tons | A-37 |
| | | | | Metric Tons | A-37 |
| | Point | SCC | No | Tons | A-38 - A-39 |
| | | | | Metric Tons | A-40 - A-41 |
| | | Province | No | Tons | A-42 |
| | | | | Metric Tons | A-42 |
| | Area & Point | Province | No | Tons | A-43 |
| | | | | Metric Tons | A-43 |
| U.S. & Canada | Area & Point | Totals | No | Tons | A-44 |
| | | | | Metric Tons | A-44 |
| U.S. | Area & Point (Emissions density) | State | No | Tons/sq mi. | A-45 - A-46 |

TABLE A-2. KEY TO TABLES, 1980 NAPAP EMISSIONS INVENTORY VERSION 5.2

| National coverage | Source type | Level of resolution | Hydrocarbon classes ? | Units | Page |
|---|---|---|---|---|---|
| U.S. | Area | SCC | No | Tons | A-47 - A-48 |
| | | | | Metric Tons | A-49 - A-50 |
| | | | Yes | Moles | A-51 - A-54 |
| | | State | No | Tons | A-55 |
| | | | | Metric Tons | A-56 |
| | | | Yes | Moles | A-57 - A-58 |
| | | Region | No | Tons | A-59 |
| | | | | Metric Tons | A-59 |
| | | | Yes | Moles | A-60 |
| | Point | SCC | No | Tons | A-61 - A-67 |
| | | | | Metric Tons | A-68 - A-74 |
| | | | Yes | Moles | A-75 - A-88 |
| | | State | No | Tons | A-89 |
| | | | | Metric Tons | A-90 |
| | | | Yes | Moles | A-91 - A-92 |
| | | Region | No | Tons | A-93 |
| | | | | Metric Tons | A-93 |
| | | | Yes | Moles | A-94 |
| | Area & Point | State | No | Tons | A-95 |
| | | | | Metric Tons | A-96 |
| | | | Yes | Moles | A-97 - A-98 |
| | | Region | No | Tons | A-99 |
| | | | | Metric Tons | A-99 |
| | | | Yes | Moles | A-100 |
| Canada | Area | SCC | No | Tons | A-101 - A-103 |
| | | | | Metric Tons | A-104 - A-106 |
| | | | Yes | Moles | A-107 - A-112 |
| | | Province | No | Tons | A-113 |
| | | | | Metric Tons | A-113 |
| | | | Yes | Moles | A-114 |
| | Point | SCC | No | Tons | A-115 - A-116 |
| | | | | Metric Tons | A-117 - A-118 |
| | | | Yes | Moles | A-119 - A-122 |
| | | Province | No | Tons | A-123 |
| | | | | Metric Tons | A-123 |
| | | | Yes | Moles | A-124 |
| | Area & Point | Province | No | Tons | A-125 |
| | | | | Metric Tons | A-125 |
| | | | Yes | Moles | A-126 |
| U.S. & Canada | Area & Point | Totals | No | Tons | A-127 |
| | | | | Metric Tons | A-127 |
| | | | Yes | Moles | A-128 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S EMISSIONS, AREA SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 1 | 12,097 | 169 | 1,279 | 0 | 39,900 | 119 | 1 | 0 | 4,406 | 7,796 | 7,963 |
| 2 | 28,664 | 1,322 | 1,511 | 0 | 47,697 | 21 | 1 | 0 | 7,906 | 9,306 | 9,506 |
| 3 | 148,356 | 28,388 | 90,714 | 0 | 25,119 | 0 | 0 | 0 | 12,499 | 23,461 | 23,461 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 1,271 | 0 | 257,245 | 0 | 51,412 | 0 | 0 | 0 | 7,529 | 9,815 | 22,234 |
| 6 | 9,866 | 98,827 | 82,533 | 0 | 6,363,435 | 0 | 0 | 0 | 1,032,150 | 2,038,388 | 2,082,113 |
| 7 | 13,301 | 161 | 5,534 | 0 | 232 | 108 | 2 | 0 | 439 | 24 | 25 |
| 8 | 44,138 | 1,700 | 8,108 | 0 | 4,801 | 59 | 2 | 0 | 279 | 56 | 57 |
| 9 | 53,199 | 9,270 | 33,329 | 0 | 8,217 | 0 | 0 | 0 | 3,123 | 1,316 | 1,316 |
| 10 | 278,844 | 25,790 | 65,818 | 0 | 5,901 | 0 | 0 | 0 | 22,421 | 2,797 | 3,141 |
| 11 | 417 | 0 | 98,432 | 0 | 19,615 | 0 | 0 | 0 | 2,681 | 3,676 | 8,327 |
| 12 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 5 | 1 | 1 |
| 13 | 155 | 1 | 63 | 0 | 1 | 0 | 0 | 7 | 1 | 0 | 0 |
| 14 | 454,236 | 16,227 | 119,649 | 0 | 15,332 | 1,065 | 283 | 0 | 4,490 | 495 | 506 |
| 15 | 189 | 1 | 49 | 0 | 21 | 0 | 0 | 0 | 76 | 1 | 1 |
| 16 | 37,407 | 5,631 | 32,792 | 0 | 7,721 | 0 | 0 | 0 | 2,828 | 126 | 126 |
| 17 | 140,186 | 2,877 | 30,219 | 0 | 2,715 | 0 | 0 | 0 | 10,527 | 952 | 1,069 |
| 18 | 25 | 0 | 1,941,195 | 0 | 259,534 | 0 | 0 | 0 | 155 | 3,962 | 8,975 |
| 19 | 7 | 284 | 105 | 0 | 311 | 0 | 0 | 0 | 135 | 121 | 124 |
| 20 | 77 | 0 | 86 | 0 | 3 | 0 | 0 | 0 | 19 | 1 | 1 |
| 21 | 1,494 | 1 | 3,289 | 70 | 935,430 | 1,494 | 0 | 0 | 110,851 | 61,784 | 311,790 |
| 22 | 1,284 | 1 | 1,284 | 0 | 9,814 | 5 | 0 | 0 | 7,259 | 1,742 | 8,792 |
| 23 | 6,496 | 16 | 10,042 | 2 | 29,182 | 94 | 0 | 0 | 21,129 | 8,288 | 41,823 |
| 24 | 9,005 | 3 | 62,147 | 0 | 1,038,173 | 0 | 0 | 0 | 242,709 | 339,286 | 339,286 |
| 25 | 144 | 0 | 1,548 | 0 | 29,182 | 0 | 0 | 0 | 4,857 | 9,092 | 9,092 |
| 26 | 11 | 0 | 188 | 0 | 3,455 | 0 | 0 | 0 | 727 | 1,396 | 1,396 |
| 28 | 67,096 | 3,591 | 1,662,082 | 7,417 | 9,703,579 | 0 | 0 | 0 | 696,177 | 1,830,921 | 1,974,069 |
| 30 | 86,875 | 4,621 | 2,064,936 | 7,404 | 35,437,309 | 0 | 0 | 0 | 3,325,305 | 4,094,727 | 4,414,869 |
| 32 | 23,236 | 414 | 501,126 | 2,877 | 3,027,549 | 0 | 0 | 0 | 175,227 | 640,766 | 690,863 |
| 34 | 30,059 | 856 | 637,663 | 2,721 | 11,205,758 | 0 | 0 | 0 | 831,481 | 1,441,277 | 1,553,962 |
| 36 | 7,093 | 1 | 193,531 | 1,998 | 2,212,888 | 0 | 0 | 0 | 43,832 | 234,862 | 253,225 |
| 38 | 8,402 | 46 | 208,408 | 1,247 | 5,492,472 | 0 | 0 | 0 | 137,676 | 489,780 | 528,073 |
| 39 | 3,326 | 76 | 76,076 | 2 | 2,476,699 | 0 | 0 | 0 | 6,865 | 198,921 | 214,720 |
| 41 | 86,416 | 1,534 | 767,745 | 0 | 245,728 | 0 | 0 | 0 | 133,644 | 112,041 | 113,984 |
| 43 | 119,651 | 2,409 | 1,158,752 | 0 | 719,910 | 0 | 0 | 0 | 338,923 | 305,115 | 310,406 |
| 44 | 74,790 | 1,100 | 907,391 | 0 | 270,807 | 0 | 0 | 0 | 94,886 | 147,354 | 154,748 |
| 45 | 128,494 | 2,270 | 833,812 | 0 | 293,012 | 0 | 0 | 0 | 56,532 | 240,871 | 245,048 |
| 46 | 4,098 | 6 | 31,732 | 0 | 151,354 | 0 | 0 | 0 | 61,689 | 89,446 | 90,823 |
| 47 | 806 | 0 | 8,264 | 0 | 536,351 | 0 | 0 | 0 | 1,541 | 30,980 | 31,457 |
| 48 | 7,573 | 20 | 76,575 | 0 | 220,313 | 0 | 0 | 0 | 3,289 | 89,097 | 90,468 |
| 49 | 3,648 | 155 | 177 | 0 | 5,295 | 0 | 0 | 0 | 3,531 | 577 | 589 |
| 50 | 12,343 | 946 | 92,176 | 0 | 32,258 | 0 | 0 | 0 | 9,862 | 28,235 | 28,235 |
| 51 | 212,163 | 16,972 | 34,861 | 0 | 1,166 | 0 | 0 | 0 | 16,094 | 2,439 | 2,739 |
| 52 | 2,725 | 0 | 10,670 | 0 | 1,360,524 | 0 | 0 | 0 | 0 | 370,657 | 400,096 |
| 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 966,415 | 966,415 |
| 55 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 29,270,073 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,528 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 5,013 | 6 | 139,445 | 0 | 4,881,714 | 0 | 0 | 0 | 592,770 | 836,862 | 836,862 |
| 61 | 3,007 | 4 | 81,983 | 0 | 2,295,361 | 0 | 0 | 0 | 409,913 | 368,884 | 368,884 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S EMISSIONS, AREA SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 62 | 0 | 0 | 8,446 | 0 | 397,513 | 0 | 0 | 0 | 60,465 | 68,041 | 68,041 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 64 | 0 | 6,595 | 0 | 230,339 | 0 | 0 | 0 | 56,693 | 42,334 | 42,334 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97,193 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129,780 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97,606 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,793 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,163 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,355 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 148,502 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 506,129 | 506,129 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300,118 | 300,118 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175,812 | 175,812 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126,782 | 126,782 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 473,818 | 473,818 |
| 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182,582 | 182,582 |
| 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,187 | 12,187 |
| 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157,460 | 157,460 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,576 | 31,576 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,584 | 20,584 |
| 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52,134 | 52,134 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,177 | 18,177 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,602 | 1,602 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,164 | 1,164 |
| 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,693 | 3,693 |
| 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248,596 | 250,820 |
| 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 342,132 | 345,193 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,047,157 | 1,047,157 |
| 96 | 374 | 17 | 207 | 0 | 5 | 19 | 1 | 19 | 1,282 | 0 | 0 |
| 97 | 739 | 41 | 5,465 | 0 | 1,196 | 0 | 0 | 0 | 3 | 580 | 652 |
| 98 | 0 | 0 | 5,679 | 0 | 905 | 0 | 0 | 0 | 0 | 129 | 291 |
| 99 | 320,535 | 24,503 | 348,181 | 297 | 83,619 | 3,888 | 1,961 | 3,779 | 418,641 | 344,393 | 350,452 |
| Contig. U.S. | 2,449,395 | 250,259 | 12,709,138 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | 19,201,288 | 20,320,417 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S EMISSIONS, AREA SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 1 | 10,974 | 153 | 1,160 | 0 | 36,197 | 108 | 1 | 0 | 3,997 | 7,072 | 7,224 |
| 2 | 26,004 | 1,199 | 1,371 | 0 | 43,270 | 19 | 1 | 0 | 7,172 | 8,443 | 8,624 |
| 3 | 134,586 | 25,753 | 82,294 | 0 | 22,788 | 0 | 0 | 0 | 11,339 | 21,284 | 21,284 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 1,153 | 0 | 233,369 | 0 | 46,640 | 0 | 0 | 0 | 6,830 | 8,904 | 20,171 |
| 6 | 8,950 | 89,654 | 74,873 | 0 | 5,772,811 | 0 | 0 | 0 | 936,351 | 1,849,195 | 1,888,861 |
| 7 | 12,066 | 146 | 5,020 | 0 | 210 | 98 | 2 | 0 | 398 | 22 | 23 |
| 8 | 40,041 | 1,542 | 7,355 | 0 | 4,355 | 54 | 2 | 0 | 253 | 51 | 52 |
| 9 | 48,261 | 8,410 | 30,236 | 0 | 7,454 | 0 | 0 | 0 | 2,833 | 1,194 | 1,194 |
| 10 | 252,963 | 23,396 | 59,709 | 0 | 5,353 | 0 | 0 | 0 | 20,340 | 2,537 | 2,850 |
| 11 | 378 | 0 | 89,296 | 0 | 17,794 | 0 | 0 | 0 | 2,432 | 3,335 | 7,554 |
| 12 | 0 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 5 | 1 | 1 |
| 13 | 141 | 1 | 57 | 0 | 1 | 0 | 0 | 6 | 1 | 0 | 0 |
| 14 | 412,076 | 14,721 | 108,544 | 0 | 13,909 | 966 | 257 | 0 | 4,073 | 449 | 459 |
| 15 | 171 | 1 | 44 | 0 | 19 | 0 | 0 | 0 | 69 | 1 | 1 |
| 16 | 33,935 | 5,108 | 29,748 | 0 | 7,004 | 0 | 0 | 0 | 2,566 | 114 | 114 |
| 17 | 127,175 | 2,610 | 27,414 | 0 | 2,463 | 0 | 0 | 0 | 9,550 | 863 | 970 |
| 18 | 23 | 0 | 1,761,022 | 0 | 235,445 | 0 | 0 | 0 | 141 | 3,594 | 8,142 |
| 19 | 6 | 258 | 95 | 0 | 282 | 0 | 0 | 0 | 122 | 110 | 112 |
| 20 | 70 | 0 | 78 | 0 | 3 | 0 | 0 | 0 | 17 | 1 | 1 |
| 21 | 1,355 | 1 | 2,984 | 64 | 848,608 | 1,355 | 0 | 0 | 100,562 | 56,050 | 282,851 |
| 22 | 1,165 | 1 | 1,165 | 0 | 8,903 | 5 | 0 | 0 | 6,585 | 1,581 | 7,976 |
| 23 | 5,893 | 15 | 9,110 | 2 | 26,473 | 85 | 0 | 0 | 19,168 | 7,518 | 37,941 |
| 24 | 8,169 | 3 | 56,379 | 0 | 941,815 | 0 | 0 | 0 | 220,182 | 307,795 | 307,795 |
| 25 | 131 | 0 | 1,404 | 0 | 26,473 | 0 | 0 | 0 | 4,406 | 8,248 | 8,248 |
| 26 | 10 | 0 | 171 | 0 | 3,134 | 0 | 0 | 0 | 660 | 1,266 | 1,266 |
| 28 | 60,868 | 3,258 | 1,507,815 | 6,729 | 8,802,939 | 0 | 0 | 0 | 631,561 | 1,660,984 | 1,790,845 |
| 30 | 78,812 | 4,192 | 1,873,278 | 6,717 | 32,148,186 | 0 | 0 | 0 | 3,016,666 | 3,714,674 | 4,005,102 |
| 32 | 21,079 | 376 | 454,614 | 2,610 | 2,746,546 | 0 | 0 | 0 | 158,963 | 581,293 | 626,741 |
| 34 | 27,269 | 777 | 578,478 | 2,468 | 10,165,693 | 0 | 0 | 0 | 754,307 | 1,307,505 | 1,409,731 |
| 36 | 6,435 | 1 | 175,568 | 1,813 | 2,007,498 | 0 | 0 | 0 | 39,764 | 213,063 | 229,722 |
| 38 | 7,622 | 42 | 189,065 | 1,131 | 4,982,687 | 0 | 0 | 0 | 124,898 | 444,321 | 479,060 |
| 39 | 3,017 | 69 | 69,015 | 2 | 2,246,824 | 0 | 0 | 0 | 6,228 | 180,458 | 194,791 |
| 41 | 78,395 | 1,392 | 696,487 | 0 | 222,921 | 0 | 0 | 0 | 121,240 | 101,642 | 103,405 |
| 43 | 108,546 | 2,185 | 1,051,202 | 0 | 653,091 | 0 | 0 | 0 | 307,466 | 276,795 | 281,596 |
| 44 | 67,848 | 998 | 823,171 | 0 | 245,672 | 0 | 0 | 0 | 86,079 | 133,677 | 140,385 |
| 45 | 116,568 | 2,059 | 756,422 | 0 | 265,816 | 0 | 0 | 0 | 51,285 | 218,515 | 222,303 |
| 46 | 3,718 | 5 | 28,787 | 0 | 137,306 | 0 | 0 | 0 | 55,963 | 81,144 | 82,393 |
| 47 | 731 | 0 | 7,497 | 0 | 486,569 | 0 | 0 | 0 | 1,398 | 28,105 | 28,537 |
| 48 | 6,870 | 18 | 69,468 | 0 | 199,865 | 0 | 0 | 0 | 2,984 | 80,827 | 82,071 |
| 49 | 3,309 | 141 | 161 | 0 | 4,804 | 0 | 0 | 0 | 3,203 | 523 | 534 |
| 50 | 11,197 | 858 | 83,621 | 0 | 29,264 | 0 | 0 | 0 | 8,947 | 25,614 | 25,614 |
| 51 | 192,471 | 15,397 | 31,625 | 0 | 1,058 | 0 | 0 | 0 | 14,600 | 2,213 | 2,485 |
| 52 | 2,472 | 0 | 9,680 | 0 | 1,234,247 | 0 | 0 | 0 | 0 | 336,254 | 362,961 |
| 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 876,717 | 876,717 |
| 55 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 26,553,364 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,829 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 4,548 | 5 | 126,502 | 0 | 4,428,616 | 0 | 0 | 0 | 537,752 | 759,188 | 759,188 |
| 61 | 2,728 | 4 | 74,374 | 0 | 2,082,316 | 0 | 0 | 0 | 371,867 | 334,646 | 334,646 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S EMISSIONS, AREA SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 62 | 0 | 0 | 7,662 | 0 | 360,618 | 0 | 0 | 0 | 54,853 | 61,726 | 61,726 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 58 | 0 | 5,983 | 0 | 208,960 | 0 | 0 | 0 | 51,431 | 38,405 | 38,405 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,172 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117,734 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,547 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40,635 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,198 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,682 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134,719 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 459,153 | 459,153 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 272,262 | 272,262 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 159,494 | 159,494 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115,015 | 115,015 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 429,840 | 429,840 |
| 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165,636 | 165,636 |
| 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,056 | 11,056 |
| 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142,845 | 142,845 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,645 | 28,645 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,673 | 18,673 |
| 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47,295 | 47,295 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,490 | 16,490 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,453 | 1,453 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,056 | 1,056 |
| 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,350 | 3,350 |
| 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 225,523 | 227,540 |
| 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 310,377 | 313,153 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 949,965 | 949,965 |
| 96 | 339 | 15 | 188 | 0 | 5 | 17 | 1 | 17 | 1,163 | 0 | 0 |
| 97 | 670 | 37 | 4,958 | 0 | 1,085 | 0 | 0 | 0 | 3 | 526 | 591 |
| 98 | 0 | 0 | 5,152 | 0 | 821 | 0 | 0 | 0 | 0 | 117 | 264 |
| 99 | 290,784 | 22,229 | 315,864 | 269 | 75,858 | 3,527 | 1,779 | 3,428 | 379,785 | 312,428 | 317,924 |
| Contig. U.S. | 2,222,054 | 227,031 | 11,529,536 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | 17,419,116 | 18,434,373 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| | | | | | | TONS/YEAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STATE | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| ALABAMA | 80,040 | 4,252 | 255,739 | 496 | 1,528,003 | 251 | 21 | 11,362 | 357,944 | 338,923 | 358,755 |
| ARIZONA | 19,942 | 1,566 | 157,130 | 293 | 1,245,599 | 75 | 16 | 6,912 | 814,038 | 240,850 | 257,295 |
| ARKANSAS | 31,473 | 2,142 | 167,618 | 263 | 910,150 | 25 | 32 | 13,094 | 840,635 | 207,710 | 217,992 |
| CALIFORNIA | 129,034 | 13,116 | 1,056,864 | 2,427 | 9,169,893 | 472 | 14 | 27,360 | 1,400,475 | 1,919,526 | 2,061,809 |
| COLORADO | 22,759 | 1,721 | 165,261 | 314 | 2,191,485 | 56 | 0 | 17,192 | 1,081,969 | 340,410 | 362,939 |
| CONNECTICUT | 29,141 | 5,882 | 117,244 | 303 | 1,180,569 | 105 | 0 | 1,946 | 112,066 | 260,138 | 274,319 |
| DELAWARE | 27,780 | 2,680 | 36,296 | 70 | 234,359 | 46 | 0 | 2,050 | 32,807 | 51,233 | 53,859 |
| DIST. OF COLUM. | 8,161 | 722 | 22,736 | 37 | 334,671 | 66 | 16 | 59 | 14,236 | 43,630 | 47,231 |
| FLORIDA | 84,235 | 5,532 | 393,835 | 1,064 | 3,926,172 | 164 | 198 | 6,906 | 819,404 | 780,255 | 816,959 |
| GEORGIA | 37,687 | 2,882 | 311,133 | 652 | 2,173,375 | 61 | 17 | 15,470 | 840,251 | 481,061 | 501,843 |
| IDAHO | 19,600 | 2,078 | 83,054 | 99 | 1,238,718 | 15 | 69 | 8,012 | 318,708 | 219,441 | 225,750 |
| ILLINOIS | 114,106 | 9,120 | 506,040 | 1,117 | 3,934,369 | 1,008 | 47 | 28,657 | 735,514 | 835,531 | 892,629 |
| INDIANA | 144,303 | 9,345 | 327,514 | 639 | 2,078,557 | 331 | 120 | 17,666 | 295,397 | 475,241 | 507,003 |
| IOWA | 26,930 | 1,381 | 180,446 | 356 | 1,050,792 | 71 | 5 | 61,150 | 1,086,371 | 219,375 | 238,339 |
| KANSAS | 34,486 | 1,281 | 299,084 | 249 | 1,011,199 | 62 | 7 | 34,093 | 1,809,113 | 209,966 | 225,356 |
| KENTUCKY | 51,676 | 5,090 | 237,911 | 412 | 1,477,488 | 235 | 73 | 8,069 | 324,834 | 338,901 | 352,949 |
| LOUISIANA | 164,422 | 10,581 | 273,726 | 505 | 1,542,880 | 121 | 98 | 4,454 | 440,200 | 329,807 | 347,058 |
| MAINE | 18,580 | 3,981 | 46,327 | 123 | 461,937 | 14 | 2 | 417 | 108,957 | 124,103 | 130,105 |
| MARYLAND | 28,208 | 4,524 | 169,757 | 451 | 1,426,057 | 13 | 47 | 2,991 | 191,542 | 303,376 | 318,323 |
| MASSACHUSETTS | 61,028 | 8,521 | 193,145 | 504 | 2,118,954 | 86 | 2 | 103 | 192,880 | 421,496 | 450,443 |
| MICHIGAN | 43,772 | 8,153 | 379,705 | 972 | 3,341,867 | 188 | 11 | 10,205 | 736,339 | 720,369 | 770,614 |
| MINNESOTA | 28,224 | 4,969 | 231,804 | 459 | 1,894,733 | 161 | 7 | 32,196 | 1,068,450 | 403,362 | 427,656 |
| MISSISSIPPI | 52,834 | 4,230 | 198,022 | 297 | 908,906 | 12 | 0 | 7,452 | 562,973 | 209,239 | 220,899 |
| MISSOURI | 62,377 | 5,851 | 261,760 | 561 | 2,125,948 | 146 | 18 | 17,258 | 2,566,115 | 458,893 | 489,566 |
| MONTANA | 22,691 | 1,544 | 102,299 | 97 | 1,282,577 | 9 | 0 | 3,705 | 861,449 | 224,386 | 230,514 |
| NEBRASKA | 13,903 | 690 | 120,336 | 169 | 599,362 | 60 | 5 | 44,329 | 1,037,379 | 123,167 | 132,498 |
| NEVADA | 7,219 | 553 | 49,281 | 101 | 508,333 | 39 | 2 | 704 | 891,181 | 90,550 | 96,164 |
| NEW HAMPSHIRE | 12,063 | 2,248 | 32,050 | 100 | 347,668 | 10 | 0 | 1 | 62,310 | 87,305 | 91,764 |
| NEW JERSEY | 76,282 | 14,170 | 285,110 | 706 | 2,210,361 | 124 | 26 | 68 | 304,009 | 591,931 | 629,848 |
| NEW MEXICO | 12,293 | 1,263 | 96,923 | 170 | 905,533 | 4 | 0 | 4,374 | 1,214,514 | 153,839 | 162,467 |
| NEW YORK | 110,225 | 19,585 | 448,945 | 1,257 | 4,644,867 | 69 | 5 | 13,959 | 556,823 | 1,070,711 | 1,125,410 |
| NORTH CAROLINA | 50,165 | 8,377 | 275,716 | 706 | 2,162,964 | 154 | 240 | 12,455 | 584,611 | 531,024 | 555,007 |
| NORTH DAKOTA | 19,500 | 1,386 | 63,744 | 67 | 226,659 | 48 | 13 | 6,441 | 1,246,423 | 50,658 | 54,742 |
| OHIO | 65,723 | 9,197 | 563,634 | 1,184 | 4,006,231 | 446 | 755 | 14,322 | 792,991 | 880,295 | 941,935 |
| OKLAHOMA | 20,181 | 2,226 | 294,801 | 408 | 1,515,621 | 25 | 5 | 13,862 | 1,039,691 | 261,648 | 273,463 |
| OREGON ' | 31,490 | 4,616 | 181,873 | 314 | 1,423,588 | 185 | 0 | 4,249 | 1,816,674 | 310,452 | 326,865 |
| PENNSYLVANIA | 115,853 | 16,547 | 545,877 | 1,155 | 3,906,891 | 640 | 21 | 15,758 | 1,244,910 | 911,242 | 950,321 |
| RHODE ISLAND | 7,066 | 1,203 | 32,382 | 78 | 314,572 | 13 | 0 | 0 | 31,258 | 71,205 | 75,722 |
| SOUTH CAROLINA | 28,632 | 2,727 | 153,172 | 374 | 1,128,686 | 72 | 52 | 3,420 | 308,963 | 264,087 | 279,079 |
| SOUTH DAKOTA | 6,966 | 546 | 54,016 | 65 | 494,277 | 15 | 1 | 12,941 | 682,573 | 93,595 | 98,137 |
| TENNESSEE | 37,934 | 4,925 | 245,044 | 589 | 1,797,709 | 170 | 116 | 7,824 | 541,485 | 420,402 | 443,920 |
| TEXAS | 270,694 | 11,972 | 2,021,732 | 1,795 | 6,937,315 | 320 | 59 | 50,179 | 5,549,442 | 1,411,256 | 1,481,514 |
| UTAH | 28,203 | 1,707 | 98,147 | 148 | 956,285 | 41 | 16 | 1,909 | 628,938 | 152,488 | 163,138 |
| VERMONT | 6,642 | 1,727 | 23,493 | 62 | 202,038 | 3 | 0 | 3 | 99,345 | 55,766 | 58,435 |
| VIRGINIA | 65,850 | 8,420 | 260,122 | 612 | 1,935,838 | 281 | 67 | 6,374 | 357,304 | 440,835 | 461,677 |
| WASHINGTON | 49,122 | 5,551 | 223,387 | 418 | 2,180,243 | 120 | 28 | 8,021 | 261,465 | 424,675 | 450,724 |
| WEST VIRGINIA | 14,738 | 2,378 | 122,674 | 203 | 631,776 | 23 | 0 | 327 | 321,511 | 149,919 | 156,298 |
| WISCONSIN | 28,124 | 5,666 | 225,751 | 513 | 1,847,355 | 191 | 18 | 31,403 | 607,920 | 413,237 | 442,178 |
| WYOMING | 27,038 | 1,435 | 116,478 | 83 | 507,399 | 26 | 4 | 1,500 | 458,736 | 83,781 | 88,907 |
| CONTIG U.S. | 2,449,395 | 250,259 | 12,709,138 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | 19,201,289 | 20,320,417 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STATE | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| ALABAMA | 72,611 | 3,857 | 232,003 | 450 | 1,386,181 | 228 | 19 | 10,307 | 324,721 | 307,466 | 325,457 |
| ARIZONA | 18,091 | 1,421 | 142,546 | 266 | 1,129,988 | 68 | 15 | 6,270 | 738,483 | 218,495 | 233,414 |
| ARKANSAS | 28,552 | 1,943 | 152,060 | 239 | 825,674 | 23 | 29 | 11,879 | 762,611 | 188,431 | 197,759 |
| CALIFORNIA | 117,058 | 11,899 | 958,771 | 2,202 | 8,318,787 | 428 | 13 | 24,821 | 1,270,490 | 1,741,365 | 1,870,442 |
| COLORADO | 20,647 | 1,561 | 149,922 | 285 | 1,988,082 | 51 | 0 | 15,596 | 981,546 | 308,815 | 329,252 |
| CONNECTICUT | 26,436 | 5,336 | 106,362 | 275 | 1,070,994 | 95 | 0 | 1,765 | 101,665 | 235,993 | 248,858 |
| DELAWARE | 25,202 | 2,431 | 32,927 | 64 | 212,607 | 42 | 0 | 1,860 | 29,762 | 46,477 | 48,860 |
| DIST. OF COLUM. | 7,404 | 655 | 20,626 | 34 | 303,608 | 60 | 15 | 54 | 12,915 | 39,581 | 42,847 |
| FLORIDA | 76,417 | 5,019 | 357,281 | 965 | 3,561,763 | 149 | 180 | 6,265 | 743,351 | 707,835 | 741,133 |
| GEORGIA | 34,189 | 2,615 | 282,255 | 591 | 1,971,653 | 55 | 15 | 14,034 | 762,263 | 436,411 | 455,264 |
| IDAHO | 17,781 | 1,885 | 75,345 | 90 | 1,123,746 | 14 | 63 | 7,269 | 289,127 | 199,074 | 204,797 |
| ILLINOIS | 103,515 | 8,274 | 459,072 | 1,013 | 3,569,200 | 914 | 43 | 25,997 | 667,247 | 757,981 | 809,780 |
| INDIANA | 130,909 | 8,478 | 297,116 | 580 | 1,885,635 | 300 | 109 | 16,026 | 267,980 | 431,131 | 459,945 |
| IOWA | 24,430 | 1,253 | 163,698 | 323 | 953,262 | 64 | 5 | 55,475 | 985,539 | 199,014 | 216,218 |
| KANSAS | 31,285 | 1,162 | 271,324 | 226 | 917,344 | 56 | 6 | 30,929 | 1,641,200 | 190,477 | 204,439 |
| KENTUCKY | 46,880 | 4,618 | 215,829 | 374 | 1,340,355 | 213 | 66 | 7,320 | 294,684 | 307,445 | 320,190 |
| LOUISIANA | 149,161 | 9,599 | 248,320 | 458 | 1,399,677 | 110 | 89 | 4,041 | 399,343 | 299,195 | 314,845 |
| MAINE | 16,855 | 3,612 | 42,027 | 112 | 419,062 | 13 | 2 | 379 | 98,844 | 112,585 | 118,029 |
| MARYLAND | 25,590 | 4,104 | 154,001 | 409 | 1,293,697 | 12 | 43 | 2,713 | 173,764 | 275,218 | 288,777 |
| MASSACHUSETTS | 55,364 | 7,730 | 175,218 | 457 | 1,922,283 | 78 | 2 | 94 | 174,978 | 382,374 | 408,635 |
| MICHIGAN | 39,709 | 7,396 | 344,463 | 882 | 3,031,691 | 171 | 10 | 9,258 | 667,996 | 653,507 | 699,089 |
| MINNESOTA | 25,604 | 4,508 | 210,289 | 416 | 1,718,873 | 146 | 6 | 29,208 | 969,282 | 365,924 | 387,963 |
| MISSISSIPPI | 47,930 | 3,837 | 179,643 | 269 | 824,546 | 11 | 0 | 6,760 | 510,721 | 189,819 | 200,396 |
| MISSOURI | 56,587 | 5,308 | 237,465 | 509 | 1,928,628 | 132 | 16 | 15,656 | 2,327,940 | 416,300 | 444,126 |
| MONTANA | 20,585 | 1,401 | 92,804 | 88 | 1,163,534 | 8 | 0 | 3,361 | 781,493 | 203,560 | 209,119 |
| NEBRASKA | 12,613 | 626 | 109,167 | 153 | 543,732 | 54 | 5 | 40,214 | 941,094 | 111,735 | 120,200 |
| NEVADA | 6,549 | 502 | 44,707 | 92 | 461,152 | 35 | 2 | 639 | 808,466 | 82,145 | 87,238 |
| NEW HAMPSHIRE | 10,943 | 2,039 | 29,075 | 91 | 315,399 | 9 | 0 | 1 | 56,527 | 79,202 | 83,247 |
| NEW JERSEY | 69,202 | 12,855 | 258,647 | 640 | 2,005,206 | 112 | 24 | 62 | 275,792 | 536,991 | 571,389 |
| NEW MEXICO | 11,152 | 1,146 | 87,927 | 154 | 821,486 | 4 | 0 | 3,968 | 1,101,789 | 139,561 | 147,388 |
| NEW YORK | 99,994 | 17,767 | 407,276 | 1,140 | 4,213,753 | 63 | 5 | 12,663 | 505,141 | 971,333 | 1,020,955 |
| NORTH CAROLINA | 45,509 | 7,599 | 250,125 | 640 | 1,962,208 | 140 | 218 | 11,299 | 530,350 | 481,737 | 503,494 |
| NORTH DAKOTA | 17,690 | 1,257 | 57,828 | 61 | 205,622 | 44 | 12 | 5,843 | 1,130,736 | 45,956 | 49,662 |
| OHIO | 59,623 | 8,343 | 511,320 | 1,074 | 3,634,392 | 405 | 685 | 12,992 | 719,389 | 798,590 | 854,509 |
| OKLAHOMA | 18,308 | 2,019 | 267,439 | 370 | 1,374,948 | 23 | 5 | 12,575 | 943,192 | 237,363 | 248,082 |
| OREGON | 28,567 | 4,188 | 164,992 | 285 | 1,291,457 | 168 | 0 | 3,855 | 1,648,059 | 281,638 | 296,527 |
| PENNSYLVANIA | 105,100 | 15,011 | 495,211 | 1,048 | 3,544,272 | 581 | 19 | 14,295 | 1,129,363 | 826,664 | 862,116 |
| RHODE ISLAND | 6,410 | 1,091 | 29,376 | 71 | 285,375 | 12 | 0 | 0 | 28,357 | 64,596 | 68,694 |
| SOUTH CAROLINA | 25,975 | 2,474 | 138,955 | 339 | 1,023,927 | 65 | 47 | 3,103 | 280,287 | 239,576 | 253,176 |
| SOUTH DAKOTA | 6,319 | 495 | 49,002 | 59 | 448,401 | 14 | 1 | 11,739 | 619,220 | 84,908 | 89,028 |
| TENNESSEE | 34,413 | 4,468 | 222,300 | 534 | 1,630,854 | 154 | 103 | 7,097 | 491,227 | 381,382 | 402,718 |
| TEXAS | 245,569 | 10,861 | 1,834,084 | 1,628 | 6,293,426 | 290 | 54 | 45,521 | 5,034,369 | 1,280,270 | 1,344,007 |
| UTAH | 25,585 | 1,549 | 89,037 | 134 | 867,527 | 37 | 15 | 1,732 | 570,563 | 138,335 | 147,996 |
| VERMONT | 6,026 | 1,567 | 21,312 | 56 | 183,286 | 3 | 0 | 2 | 90,124 | 50,590 | 53,011 |
| VIRGINIA | 59,738 | 7,638 | 235,979 | 555 | 1,756,163 | 255 | 61 | 5,782 | 324,141 | 399,919 | 418,827 |
| WASHINGTON | 44,563 | 5,036 | 202,653 | 379 | 1,977,883 | 109 | 25 | 7,277 | 237,197 | 385,259 | 408,890 |
| WEST VIRGINIA | 13,370 | 2,157 | 111,288 | 184 | 573,138 | 21 | 0 | 296 | 291,670 | 136,004 | 141,791 |
| WISCONSIN | 25,514 | 5,140 | 204,798 | 465 | 1,675,892 | 173 | 16 | 28,488 | 551,496 | 374,882 | 401,137 |
| WYOMING | 24,528 | 1,302 | 105,667 | 75 | 460,305 | 24 | 4 | 1,361 | 416,158 | 76,005 | 80,655 |
| CONTIG U.S. | 2,222,054 | 227,031 | 11,529,536 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | 17,419,117 | 18,434,372 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| EPA REGION | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | |
| REGION 1 | 134,520 | 23,562 | 444,641 | 1,170 | 4,625,738 | 231 | 4 | 2,470 | 606,816 | 1,020,013 | 1,080,788 |
| REGION 2 | 186,507 | 33,755 | 734,055 | 1,963 | 6,855,228 | 193 | 31 | 14,026 | 860,832 | 1,662,642 | 1,755,258 |
| REGION 3 | 260,590 | 35,271 | 1,157,462 | 2,528 | 8,469,592 | 1,069 | 151 | 27,558 | 2,162,310 | 1,900,234 | 1,987,708 |
| REGION 4 | 423,203 | 38,015 | 2,070,572 | 4,590 | 15,103,303 | 1,119 | 715 | 72,957 | 4,340,465 | 3,363,893 | 3,529,412 |
| REGION 5 | 424,252 | 46,450 | 2,234,448 | 4,884 | 17,103,112 | 2,325 | 958 | 134,448 | 4,236,611 | 3,728,034 | 3,982,016 |
| REGION 6 | 499,063 | 28,184 | 2,854,800 | 3,141 | 11,811,499 | 495 | 194 | 85,962 | 9,084,482 | 2,364,260 | 2,482,493 |
| REGION 7 | 137,696 | 9,203 | 861,626 | 1,335 | 4,787,301 | 339 | 35 | 156,830 | 6,498,978 | 1,011,400 | 1,085,758 |
| REGION 8 | 127,157 | 8,339 | 599,945 | 774 | 5,658,682 | 195 | 34 | 43,688 | 4,960,088 | 945,319 | 998,377 |
| REGION 9 | 156,195 | 15,235 | 1,263,275 | 2,821 | 10,923,825 | 586 | 32 | 34,976 | 3,105,694 | 2,250,925 | 2,415,267 |
| REGION 10 | 100,212 | 12,245 | 488,314 | 831 | 4,842,549 | 320 | 97 | 20,282 | 2,396,847 | 954,569 | 1,003,339 |
| CONTIG U.S. | 2,449,395 | 250,259 | 12,709,138 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | 19,201,289 | 20,320,417 |

| EPA REGION | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | METRIC TONS/YEAR | | | | | | | | | | |
| REGION 1 | 122,034 | 21,375 | 403,372 | 1,061 | 4,196,399 | 210 | 4 | 2,241 | 550,494 | 925,340 | 980,475 |
| REGION 2 | 169,196 | 30,622 | 665,924 | 1,781 | 6,218,958 | 175 | 28 | 12,725 | 780,934 | 1,508,324 | 1,592,344 |
| REGION 3 | 236,403 | 31,997 | 1,050,032 | 2,293 | 7,683,485 | 970 | 137 | 25,000 | 1,961,615 | 1,723,864 | 1,803,219 |
| REGION 4 | 383,923 | 34,487 | 1,878,391 | 4,164 | 13,701,486 | 1,015 | 649 | 66,185 | 3,937,604 | 3,051,672 | 3,201,828 |
| REGION 5 | 384,875 | 42,139 | 2,027,057 | 4,431 | 15,515,682 | 2,109 | 869 | 121,969 | 3,843,389 | 3,382,015 | 3,612,424 |
| REGION 6 | 452,742 | 25,568 | 2,589,831 | 2,849 | 10,715,212 | 449 | 176 | 77,984 | 8,241,304 | 2,144,821 | 2,252,080 |
| REGION 7 | 124,916 | 8,349 | 781,654 | 1,211 | 4,342,966 | 308 | 32 | 142,274 | 5,895,774 | 917,527 | 984,983 |
| REGION 8 | 115,355 | 7,565 | 544,261 | 702 | 5,133,470 | 177 | 31 | 39,633 | 4,499,716 | 857,579 | 905,713 |
| REGION 9 | 141,698 | 13,821 | 1,146,024 | 2,559 | 9,909,927 | 532 | 29 | 31,730 | 2,817,438 | 2,042,005 | 2,191,093 |
| REGION 10 | 90,911 | 11,108 | 442,991 | 754 | 4,393,087 | 290 | 88 | 18,400 | 2,174,383 | 865,970 | 910,214 |
| CONTIG U.S. | 2,222,054 | 227,031 | 11,529,536 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | 17,419,117 | 18,434,372 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 101002 | 15,793,408 | 338,017 | 4,979,030 | 30 | 160,708 | 474,292 | 57,413 | 133 | 521,611 | 25,827 | 26,382 |
| 101003 | 279,553 | 36,021 | 201,285 | 5 | 13,569 | 158 | 158 | 7 | 52,263 | 2,022 | 2,065 |
| 101004 | 1,385,537 | 41,110 | 393,478 | 0 | 39,829 | 0 | 0 | 0 | 54,266 | 12,677 | 14,244 |
| 101005 | 8,359 | 1,035 | 5,247 | 0 | 1,105 | 0 | 0 | 0 | 94 | 45 | 45 |
| 101006 | 968 | 0 | 744,528 | 0 | 68,311 | 0 | 0 | 0 | 4,620 | 1,362 | 3,096 |
| 102001 | 3,590 | 277 | 2,008 | 0 | 116 | 374 | 16 | 0 | 252 | 10 | 18 |
| 102002 | 1,187,896 | 43,699 | 391,054 | 28 | 35,225 | 31,492 | 12,210 | 10 | 347,169 | 6,455 | 6,594 |
| 102003 | 52,631 | 3,039 | 11,804 | 0 | 3,691 | 258 | 44 | 1 | 24,348 | 132 | 135 |
| 102004 | 1,045,988 | 22,414 | 281,449 | 0 | 53,251 | 0 | 0 | 0 | 79,592 | 50,266 | 56,481 |
| 102005 | 95,558 | 4,104 | 39,258 | 0 | 7,814 | 0 | 0 | 0 | 6,362 | 16,029 | 16,029 |
| 102006 | 41,503 | 204 | 514,983 | 0 | 107,103 | 0 | 0 | 0 | 17,099 | 12,809 | 29,109 |
| 102007 | 301,546 | 1,114 | 101,959 | 0 | 14,157 | 0 | 0 | 0 | 11,388 | 7,567 | 11,254 |
| 102008 | 4,471 | 16 | 1,206 | 0 | 19,147 | 0 | 0 | 0 | 2,060 | 296 | 302 |
| 102009 | 15,464 | 70,815 | 97,272 | 0 | 103,091 | 0 | 0 | 0 | 91,961 | 62,442 | 63,785 |
| 102010 | 54 | 0 | 178 | 0 | 23 | 0 | 0 | 0 | 58 | 10 | 22 |
| 102011 | 616 | 0 | 1,885 | 0 | 1,443 | 0 | 0 | 0 | 8,872 | 4,053 | 4,053 |
| 102012 | 3,448 | 0 | 1,860 | 0 | 15 | 0 | 0 | 0 | 1,813 | 22 | 22 |
| 102013 | 17,505 | 0 | 2,807 | 366 | 114 | 0 | 0 | 0 | 650 | 64 | 64 |
| 103001 | 309 | 17 | 110 | 0 | 4 | 21 | 0 | 0 | 403 | 3 | 3 |
| 103002 | 83,411 | 3,087 | 19,098 | 1 | 4,435 | 1,730 | 185 | 1 | 29,094 | 950 | 970 |
| 103003 | 1,804 | 119 | 339 | 0 | 341 | 18 | 1 | 0 | 2,060 | 29 | 30 |
| 103004 | 81,373 | 10,099 | 32,493 | 0 | 2,352 | 0 | 0 | 0 | 33,884 | 1,353 | 1,521 |
| 103005 | 20,061 | 990 | 3,491 | 0 | 1,010 | 0 | 0 | 0 | 10,236 | 877 | 877 |
| 103006 | 619 | 0 | 39,538 | 0 | 4,936 | 0 | 0 | 0 | 1,300 | 1,174 | 2,668 |
| 103009 | 265 | 1,418 | 2,739 | 0 | 1,711 | 0 | 0 | 0 | 1,059 | 926 | 946 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 |
| 103013 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 6 | 6 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 105001 | 31,800 | 165 | 11,095 | 0 | 43,506 | 0 | 0 | 0 | 3,102 | 3,470 | 5,210 |
| 105002 | 955 | 615 | 907 | 0 | 222 | 0 | 0 | 0 | 131 | 218 | 218 |
| 199999 | 8,675 | 0 | 2,518 | 0 | 498 | 0 | 0 | 0 | 1,219 | 1,230 | 1,230 |
| 201001 | 9,741 | 17 | 31,411 | 0 | 6,994 | 0 | 0 | 0 | 2,187 | 1,984 | 2,318 |
| 201002 | 26 | 0 | 81,740 | 0 | 16,567 | 0 | 0 | 0 | 1,420 | 2,018 | 7,627 |
| 202001 | 3,215 | 13 | 13,573 | 0 | 3,656 | 0 | 0 | 0 | 817 | 1,517 | 1,772 |
| 202002 | 4,917 | 0 | 642,808 | 0 | 112,937 | 0 | 0 | 0 | 3,158 | 12,183 | 83,323 |
| 202003 | 9 | 0 | 165 | 0 | 6,440 | 0 | 0 | 0 | 187 | 274 | 320 |
| 202004 | 10 | 0 | 702 | 0 | 183 | 0 | 0 | 0 | 47 | 17 | 20 |
| 203001 | 10 | 0 | 506 | 0 | 80 | 0 | 0 | 0 | 14 | 19 | 22 |
| 203002 | 3 | 0 | 818 | 0 | 1,366 | 0 | 0 | 0 | 9 | 10 | 73 |
| 204001 | 195 | 0 | 678 | 0 | 474 | 0 | 0 | 0 | 156 | 76 | 545 |
| 204004 | 58 | 0 | 884 | 0 | 1,200 | 0 | 0 | 0 | 210 | 370 | 432 |
| 299999 | 0 | 0 | 535 | 0 | 118 | 0 | 0 | 0 | 0 | 1 | 1 |
| 301001 | 1,465 | 0 | 4,584 | 0 | 28,485 | 0 | 0 | 0 | 97 | 9,119 | 9,119 |
| 301003 | 1,415 | 4 | 6,967 | 0 | 62,182 | 0 | 0 | 3,108 | 518 | 15,468 | 15,468 |
| 301005 | 19,919 | 0 | 1,262 | 0 | 1,841,589 | 0 | 0 | 0 | 2,848 | 189,542 | 189,542 |
| 301006 | 1,820 | 0 | 20,580 | 0 | 70,711 | 0 | 0 | 0 | 76,161 | 94,612 | 94,612 |
| 301007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 727 | 733 |
| 301008 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 54 | 370 | 370 |
| 301009 | 751 | 0 | 118 | 0 | 23 | 0 | 0 | 0 | 1,034 | 599 | 599 |
| 301010 | 80 | 0 | 2,363 | 0 | 0 | 0 | 0 | 0 | 998 | 714 | 714 |
| 301011 | 0 | 0 | 0 | 0 | 160 | 731 | 0 | 0 | 51 | 42 | 96 |
| 301012 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,020 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| SCC | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 301013 | 7,325 | 0 | 47,931 | 0 | 5,558 | 0 | 0 | 0 | 1,331 | 1,491 | 1,491 |
| 301014 | 4,558 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,862 | 16,010 | 16,010 |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5,955 | 5,955 |
| 301016 | 11,975 | 0 | 0 | 0 | 12 | 0 | 1,650 | 0 | 1,067 | 0 | 0 |
| 301017 | 1 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 376 | 11 | 11 |
| 301018 | 1,808 | 0 | 304 | 0 | 223 | 0 | 0 | 0 | 58,550 | 105,497 | 106,322 |
| 301019 | 366 | 5 | 0 | 0 | 22,015 | 0 | 0 | 0 | 7,193 | 567 | 2,042 |
| 301020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1,769 | 1,769 |
| 301021 | 243 | 0 | 472 | 0 | 4,972 | 0 | 0 | 0 | 4,872 | 218 | 218 |
| 301022 | 7,705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 360 | 0 | 0 |
| 301023 | 288,797 | 1,430 | 377 | 0 | 1,215 | 0 | 0 | 0 | 15,830 | 61 | 63 |
| 301024 | 7,466 | 0 | 2 | 0 | 4,165 | 0 | 0 | 0 | 1,206 | 17,219 | 17,219 |
| 301025 | 604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 21,830 | 22,219 |
| 301026 | 5,054 | 0 | 297 | 0 | 19,004 | 0 | 0 | 0 | 1,440 | 90,128 | 90,128 |
| 301027 | 1,002 | 0 | 1,944 | 0 | 8,122 | 0 | 0 | 224,793 | 11,234 | 45 | 45 |
| 301028 | 1,049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,410 | 0 | 0 |
| 301029 | 5,976 | 0 | 15 | 0 | 4 | 0 | 29,824 | 0 | 616 | 3 | 3 |
| 301030 | 8,681 | 0 | 8,166 | 0 | 4 | 0 | 1,933 | 766 | 8,205 | 32 | 32 |
| 301031 | 0 | 0 | 0 | 0 | 35,858 | 0 | 0 | 0 | 289 | 58,475 | 58,475 |
| 301032 | 251,892 | 3,078 | 674 | 0 | 2,343 | 0 | 0 | 0 | 982 | 1,404 | 1,404 |
| 301033 | 790 | 0 | 677 | 0 | 0 | 0 | 0 | 0 | 27 | 2,739 | 2,739 |
| 301034 | 1,084 | 0 | 3,605 | 0 | 113 | 0 | 0 | 0 | 415 | 2,677 | 2,711 |
| 301035 | 11,244 | 4 | 1,433 | 0 | 27,421 | 0 | 0 | 0 | 1,645 | 5 | 6 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,807 | 0 | 0 |
| 301041 | 1,909 | 6 | 0 | 0 | 112 | 0 | 0 | 0 | 334 | 3,256 | 3,314 |
| 301042 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 20 | 1,929 | 1,929 |
| 301050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,189 | 1,210 |
| 301060 | 226 | 0 | 12 | 0 | 174 | 0 | 0 | 0 | 3,947 | 1,509 | 1,535 |
| 301091 | 38 | 0 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 797 | 797 |
| 301100 | 0 | 0 | 0 | 0 | 13,238 | 0 | 0 | 0 | 0 | 248 | 248 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 |
| 301120 | 0 | 0 | 8 | 0 | 2 | 0 | 0 | 0 | 378 | 1,349 | 1,349 |
| 301125 | 250 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 16 | 2,107 | 2,107 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 151 | 250 |
| 301132 | 69 | 0 | 669 | 0 | 175 | 0 | 0 | 0 | 271 | 4,572 | 4,648 |
| 301137 | 480 | 0 | 7 | 0 | 45 | 0 | 0 | 0 | 0 | 324 | 330 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 130 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 137 | 137 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 380 | 380 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,662 | 1,692 |
| 301181 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 99 | 99 |
| 301197 | 2,964 | 0 | 369 | 0 | 1,462 | 0 | 0 | 0 | 61 | 23,003 | 23,003 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,020 | 1,020 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 520 | 520 |
| 301250 | 1 | 0 | 2,666 | 0 | 3,964 | 0 | 0 | 0 | 5 | 1,371 | 1,371 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 999 | 999 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 106 |
| 301254 | 24 | 0 | 225 | 0 | 5,927 | 0 | 0 | 0 | 0 | 8,354 | 8,354 |
| 301258 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 3 | 7,406 | 7,449 |
| 301820 | 243 | 0 | 0 | 0 | 67 | 0 | 0 | 0 | 30 | 1,855 | 1,855 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 301888 | 247 | 0 | 5 | 0 | 36 | 0 | 0 | 0 | 12,570 | 467 | 475 |
| 301900 | 182,612 | 0 | 510 | 0 | 24 | 0 | 0 | 0 | 411 | 651 | 651 |
| 301999 | 57,725 | 0 | 32,764 | 0 | 241,373 | 0 | 0 | 0 | 52,092 | 211,348 | 211,348 |
| 302001 | 1 | 0 | 197 | 0 | 15 | 0 | 0 | 0 | 18,573 | 4 | 4 |
| 302002 | 0 | 0 | 62 | 0 | 48 | 0 | 0 | 0 | 1,977 | 48 | 48 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 618 | 0 | 0 |
| 302005 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 45,098 | 0 | 0 |
| 302006 | 6 | 0 | 88 | 0 | 53 | 0 | 0 | 0 | 200,334 | 0 | 0 |
| 302007 | 198 | 0 | 27 | 0 | 3 | 0 | 0 | 0 | 43,120 | 761 | 7,045 |
| 302008 | 512 | 0 | 5 | 0 | 17 | 0 | 0 | 0 | 9,680 | 2 | 2 |
| 302009 | 1,264 | 0 | 127 | 0 | 14 | 0 | 0 | 0 | 1,615 | 405 | 2,171 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 614 | 24,034 | 24,034 |
| 302012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 26 | 336 |
| 302013 | 0 | 0 | 1 | 0 | 72 | 0 | 0 | 0 | 28 | 840 | 858 |
| 302014 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,586 | 0 | 0 |
| 302015 | 1,674 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 1,684 | 0 | 0 |
| 302016 | 699 | 0 | 355 | 0 | 25 | 0 | 0 | 0 | 7,834 | 7 | 7 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 535 | 0 | 0 |
| 302018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 237 |
| 302019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 780 | 10,183 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 762 | 2,550 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 147 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 487 | 0 | 0 |
| 302032 | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 4 | 57 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,913 | 1,913 |
| 302888 | 0 | 0 | 2 | 0 | 26 | 0 | 0 | 0 | 382 | 15 | 162 |
| 302999 | 1,241 | 0 | 426 | 0 | 16 | 0 | 0 | 0 | 5,116 | 371 | 4,840 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,698 | 0 | 0 |
| 303001 | 87,605 | 561 | 131,298 | 0 | 678,962 | 0 | 9,749 | 0 | 46,980 | 15,458 | 33,098 |
| 303002 | 1,403 | 0 | 984 | 0 | 163 | 0 | 0 | 0 | 21,303 | 9 | 9 |
| 303003 | 75,716 | 12,742 | 4,271 | 0 | 37,997 | 0 | 0 | 7,373 | 58,581 | 32,629 | 69,863 |
| 303004 | 30 | 0 | 4 | 0 | 11 | 0 | 0 | 0 | 2,168 | 40 | 86 |
| 303005 | 1,099,046 | 35,393 | 1,038 | 160 | 7,211 | 0 | 0 | 0 | 20,562 | 17 | 20 |
| 303006 | 387 | 0 | 110 | 59 | 282 | 0 | 0 | 0 | 28,206 | 19 | 22 |
| 303007 | 92 | 0 | 0 | 0 | 363 | 0 | 0 | 0 | 1,230 | 0 | 0 |
| 303008 | 63,405 | 738 | 17,676 | 1,246 | 1,115,635 | 0 | 0 | 0 | 163,355 | 4,327 | 17,794 |
| 303009 | 53,762 | 0 | 29,971 | 1,679 | 369,322 | 0 | 0 | 0 | 64,061 | 4,270 | 4,451 |
| 303010 | 57,902 | 1,532 | 3 | 887 | 43,930 | 0 | 0 | 0 | 7,129 | 0 | 0 |
| 303011 | 1,939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,969 | 73 | 73 |
| 303012 | 0 | 0 | 164 | 0 | 4,993 | 0 | 0 | 0 | 1 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 2,203 | 0 | 206 | 0 | 5,941 | 0 | 0 | 0 | 2,636 | 427 | 427 |
| 303023 | 10,609 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 68,416 | 0 | 0 |
| 303030 | 37,793 | 11,227 | 100 | 385 | 17 | 0 | 0 | 0 | 8,857 | 3 | 6 |
| 303888 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1,849 | 0 | 0 |
| 303999 | 2,758 | 0 | 120 | 0 | 552 | 0 | 0 | 0 | 1,052 | 84 | 205 |
| 304001 | 1,086 | 0 | 8,852 | 0 | 983 | 0 | 0 | 0 | 11,579 | 3,652 | 5,769 |
| 304002 | 6 | 0 | 932 | 228 | 3,732 | 0 | 0 | 0 | 4,850 | 177 | 280 |
| 304003 | 7,305 | 9 | 1,276 | 497 | 491,060 | 0 | 0 | 0 | 36,836 | 1,822 | 4,468 |
| 304004 | 26,595 | 98 | 358 | 276 | 160 | 0 | 0 | 0 | 8,690 | 3,292 | 5,201 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 304006 | 32 | 0 | 3 | 0 | 6,390 | 0 | 0 | 0 | 149 | 0 | 0 |
| 304007 | 6,809 | 0 | 3,731 | 0 | 5,332 | 0 | 0 | 0 | 6,419 | 104 | 254 |
| 304008 | 1,714 | 0 | 616 | 0 | 17 | 0 | 0 | 0 | 3,046 | 4 | 6 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 767 | 0 | 33 | 0 | 3 | 0 | 0 | 0 | 786 | 166 | 166 |
| 304022 | 1 | 0 | 885 | 0 | 27 | 0 | 0 | 0 | 128 | 206 | 325 |
| 304034 | 67 | 0 | 170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 0 | 0 | 0 | 0 | 554 | 0 | 0 | 0 | 25 | 477 | 753 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 1 | 1 |
| 304999 | 2,677 | 0 | 273 | 0 | 252 | 0 | 0 | 0 | 3,190 | 563 | 890 |
| 305001 | 10 | 0 | 3 | 0 | 2,330 | 0 | 0 | 0 | 4,647 | 2,875 | 2,881 |
| 305002 | 42,343 | 0 | 9,600 | 0 | 5,992 | 0 | 0 | 0 | 73,020 | 619 | 1,408 |
| 305003 | 6,288 | 26 | 3,675 | 0 | 1,981 | 0 | 0 | 0 | 128,969 | 819 | 1,708 |
| 305004 | 166 | 1 | 0 | 0 | 45 | 0 | 0 | 0 | 474 | 306 | 306 |
| 305005 | 829 | 0 | 901 | 0 | 64 | 0 | 0 | 0 | 8,044 | 19 | 45 |
| 305006 | 187,090 | 2,266 | 53,312 | 302 | 1,296 | 0 | 0 | 0 | 135,301 | 433 | 486 |
| 305007 | 158,859 | 7,611 | 58,727 | 207 | 2,227 | 0 | 0 | 0 | 214,451 | 452 | 512 |
| 305008 | 457 | 0 | 126 | 0 | 1 | 0 | 0 | 0 | 20,986 | 35 | 95 |
| 305009 | 472 | 0 | 187 | 0 | 4 | 0 | 0 | 0 | 9,518 | 10 | 28 |
| 305010 | 11,673 | 36 | 3,643 | 0 | 137 | 0 | 0 | 0 | 54,260 | 2,267 | 2,316 |
| 305011 | 0 | 0 | 4,386 | 0 | 86 | 0 | 0 | 0 | 3,526 | 6 | 16 |
| 305012 | 5,532 | 15 | 5,725 | 0 | 1,030 | 0 | 0 | 0 | 19,030 | 1,480 | 4,229 |
| 305013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 74 | 211 |
| 305014 | 28,602 | 87 | 42,809 | 991 | 10,815 | 0 | 0 | 0 | 14,784 | 1,950 | 5,319 |
| 305015 | 259 | 13,205 | 68 | 0 | 16 | 0 | 0 | 0 | 21,655 | 8 | 11 |
| 305016 | 15,937 | 0 | 27,491 | 0 | 29,711 | 0 | 0 | 0 | 86,894 | 1,009 | 1,031 |
| 305017 | 1,278 | 0 | 128 | 0 | 10,806 | 0 | 0 | 0 | 3,109 | 49 | 78 |
| 305018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,078 | 49 | 141 |
| 305019 | 26,487 | 0 | 648 | 0 | 3 | 0 | 0 | 0 | 17,411 | 0 | 1 |
| 305020 | 2,003 | 0 | 652 | 0 | 33 | 0 | 0 | 0 | 354,666 | 60 | 171 |
| 305021 | 440 | 0 | 621 | 0 | 0 | 0 | 0 | 0 | 827 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,530 | 0 | 0 |
| 305024 | 0 | 0 | 64 | 0 | 43 | 0 | 0 | 0 | 13,609 | 0 | 0 |
| 305025 | 78 | 0 | 64 | 0 | 3 | 0 | 0 | 0 | 21,164 | 1 | 2 |
| 305026 | 3 | 0 | 10 | 0 | 6 | 0 | 0 | 0 | 617 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 292 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 83 | 946 | 2,702 |
| 305040 | 5,514 | 0 | 2,468 | 0 | 382 | 0 | 0 | 0 | 32,457 | 41 | 116 |
| 305100 | 120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,233 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 634 | 0 | 0 |
| 305888 | 292 | 0 | 0 | 0 | 258 | 0 | 0 | 0 | 3,216 | 174 | 174 |
| 305999 | 6,910 | 0 | 1,773 | 0 | 8,282 | 0 | 0 | 0 | 36,960 | 2,158 | 6,167 |
| 306001 | 296,609 | 747 | 194,109 | 0 | 18,384 | 0 | 0 | 0 | 18,730 | 6,278 | 11,405 |
| 306002 | 263,612 | 8,594 | 45,604 | 0 | 1,363,517 | 0 | 0 | 8,427 | 45,761 | 63,337 | 98,954 |
| 306003 | 9,474 | 11 | 451 | 0 | 102,795 | 0 | 0 | 87 | 3,097 | 2,294 | 3,584 |
| 306004 | 12,150 | 56 | 8,553 | 0 | 1,910 | 0 | 0 | 0 | 17 | 15,632 | 18,317 |
| 306005 | 1,344 | 0 | 14 | 0 | 34 | 0 | 0 | 0 | 240 | 107,178 | 112,366 |
| 306006 | 1,229 | 0 | 118 | 0 | 9 | 0 | 0 | 0 | 5 | 34,549 | 42,465 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,851 | 6,851 |
| 306008 | 1,984 | 0 | 2,486 | 0 | 132 | 0 | 0 | 0 | 163 | 81,570 | 93,104 |
| 306009 | 16,083 | 0 | 1,804 | 0 | 104 | 0 | 0 | 0 | 391 | 5,809 | 11,620 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,419 | 1,419 |
| 306011 | 84 | 0 | 52 | 0 | 388 | 0 | 0 | 0 | 36 | 50,007 | 60,326 |
| 306012 | 19,455 | 0 | 2,090 | 0 | 6 | 0 | 0 | 0 | 51,386 | 1,928 | 3,012 |
| 306014 | 4,021 | 0 | 1,211 | 0 | 47 | 0 | 0 | 0 | 1,786 | 236 | 536 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,796 | 2,796 |
| 306888 | 469 | 0 | 241 | 0 | 0 | 0 | 0 | 0 | 174 | 20,992 | 30,153 |
| 306999 | 61,103 | 0 | 5,656 | 0 | 57,420 | 0 | 0 | 0 | 3,376 | 35,893 | 54,718 |
| 307001 | 106,094 | 41,572 | 47,450 | 0 | 713,756 | 0 | 0 | 0 | 78,608 | 11,513 | 11,682 |
| 307002 | 30,417 | 5,444 | 1,846 | 0 | 276 | 0 | 0 | 0 | 2,767 | 237 | 237 |
| 307003 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 176 | 176 |
| 307004 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 0 | 1,242 | 2,157 | 2,157 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 244 | 244 |
| 307007 | 372 | 0 | 4,800 | 0 | 1,471 | 0 | 0 | 0 | 45,723 | 6,559 | 6,559 |
| 307008 | 3,073 | 0 | 3,668 | 0 | 763 | 0 | 0 | 0 | 13,221 | 1,923 | 1,923 |
| 307011 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,488 | 8,488 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 157 |
| 307020 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,270 | 4,579 | 4,579 |
| 307030 | 7 | 0 | 48 | 0 | 148 | 0 | 0 | 0 | 2,739 | 189 | 189 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 843 | 714 | 714 |
| 307999 | 919 | 0 | 683 | 0 | 9,561 | 0 | 0 | 0 | 5,243 | 1,617 | 1,617 |
| 308001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182 | 11,073 | 11,073 |
| 308006 | 0 | 0 | 122 | 0 | 34 | 0 | 0 | 0 | 254 | 1,033 | 1,033 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | 6,813 | 6,813 |
| 309001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 467 | 737 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 765 | 0 | 0 |
| 309010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 1,992 | 2,758 |
| 309011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 67 |
| 309020 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 61 | 4,450 | 7,031 |
| 309030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,669 | 754 | 1,045 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 0 | 0 |
| 309888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90,275 | 69 | 96 |
| 309999 | 140 | 0 | 390 | 0 | 3 | 0 | 0 | 0 | 2,022 | 3,198 | 3,198 |
| 310001 | 1,038 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 720 | 13,139 | 13,139 |
| 310002 | 1,075 | 5 | 2,904 | 0 | 1,593 | 0 | 0 | 0 | 502 | 804 | 862 |
| 312999 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 240 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 419 | 419 |
| 330001 | 43 | 0 | 19 | 0 | 3 | 0 | 0 | 0 | 1,223 | 22,377 | 22,377 |
| 330002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 3,766 | 3,766 |
| 330003 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 85 | 82 | 82 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 94 | 94 |
| 390001 | 903 | 0 | 2,029 | 0 | 120 | 0 | 0 | 0 | 428 | 6 | 6 |
| 390002 | 71,893 | 192 | 2,763 | 0 | 29,478 | 0 | 0 | 0 | 8,569 | 664 | 678 |
| 390004 | 46,919 | 64 | 6,687 | 0 | 1,005 | 0 | 0 | 0 | 3,057 | 1,719 | 1,931 |
| 390005 | 4,029 | 9 | 3,550 | 0 | 1,785 | 0 | 0 | 0 | 4,251 | 860 | 860 |
| 390006 | 38,151 | 109 | 28,222 | 0 | 52,259 | 0 | 0 | 0 | 11,429 | 11,261 | 25,493 |
| 390007 | 13,403 | 0 | 2,379 | 0 | 22,220 | 0 | 0 | 0 | 2,515 | 234 | 404 |
| 390008 | 5,601 | 2 | 1,111 | 0 | 34,160 | 0 | 0 | 0 | 426 | 46 | 46 |
| 390009 | 0 | 0 | 342 | 0 | 0 | 0 | 0 | 0 | 1,612 | 130 | 130 |
| 390010 | 0 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 846 | 756 | 1,718 |
| 390012 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 29,212 | 0 | 14,600 | 0 | 77,163 | 0 | 0 | 0 | 48,893 | 90,446 | 205,538 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| SCC | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,633 | 7,633 |
| 401002 | 327 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 205 | 100,419 | 100,419 |
| 401003 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 921 | 921 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 407 | 407 |
| 401913 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 66 |
| 402001 | 2 | 0 | 318 | 0 | 84 | 0 | 0 | 0 | 1,093 | 245,536 | 245,536 |
| 402002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,015 | 2,015 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 34,008 | 34,008 |
| 402004 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 455 | 140,729 | 140,729 |
| 402005 | 0 | 0 | 297 | 0 | 183 | 0 | 0 | 0 | 486 | 122,551 | 122,551 |
| 402006 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 1,129 | 78,612 | 78,612 |
| 402007 | 2 | 0 | 18 | 0 | 2,048 | 0 | 0 | 0 | 69 | 22,573 | 22,573 |
| 402008 | 193 | 0 | 180 | 0 | 575 | 0 | 0 | 0 | 1,504 | 21,367 | 61,451 |
| 402009 | 1 | 0 | 619 | 0 | 42 | 0 | 0 | 0 | 818 | 221,147 | 221,147 |
| 402010 | 0 | 0 | 50 | 0 | 13 | 0 | 0 | 0 | 11 | 3,858 | 3,858 |
| 402011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,928 | 1,928 |
| 402013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,518 | 16,518 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 103 |
| 402016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 923 | 923 |
| 402017 | 0 | 0 | 496 | 0 | 83 | 0 | 0 | 0 | 0 | 31,769 | 32,037 |
| 402018 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 314 | 314 |
| 402019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 337 | 337 |
| 402020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 475 | 519 |
| 402021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 | 140 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,060 | 5,060 |
| 402023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 245 | 245 |
| 402024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 18 | 18 |
| 402025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,655 | 1,655 |
| 402888 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,090 | 29,090 |
| 402901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 64 |
| 402999 | 0 | 0 | 685 | 0 | 557 | 0 | 0 | 0 | 8,724 | 88,798 | 88,798 |
| 403001 | 425 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 1,720 | 161,522 | 170,891 |
| 403002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 66,658 | 67,330 |
| 403003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,839 | 3,868 |
| 403010 | 0 | 0 | 100 | 0 | 66,886 | 0 | 0 | 0 | 357 | 41,475 | 42,274 |
| 403011 | 4,350 | 0 | 972 | 0 | 33,443 | 0 | 0 | 0 | 1,110 | 34,742 | 34,984 |
| 403012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,430 | 23,430 |
| 403888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,627 | 4,736 |
| 403999 | 223 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 359 | 29,774 | 29,774 |
| 404001 | 0 | 0 | 80 | 0 | 0 | 0 | 0 | 0 | 2,982 | 113,930 | 113,930 |
| 404002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,205 | 2,205 |
| 405001 | 0 | 0 | 11 | 0 | 14 | 0 | 0 | 0 | 53 | 24,311 | 101,339 |
| 405002 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 3,664 | 15,157 |
| 405003 | 0 | 0 | 290 | 0 | 38 | 0 | 0 | 0 | 45 | 15,344 | 15,344 |
| 405004 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 27,533 | 27,533 |
| 405005 | 0 | 0 | 30 | 0 | 17 | 0 | 0 | 0 | 423 | 66,633 | 66,633 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 420 |
| 405888 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 1,055 |
| 406001 | 0 | 0 | 0 | 0 | 100,329 | 0 | 0 | 0 | 1,737 | 90,703 | 91,457 |
| 406002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 21,748 | 22,615 |
| 406003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 5,748 | 5,748 |
| 406004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 8,865 | 8,866 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 406888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,147 | 3,147 |
| 490001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,116 | 2,902 |
| 490999 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 445 | 95,261 | 130,632 |
| 501001 | 5,322 | 9 | 5,580 | 143 | 58,001 | 5,357 | 0 | 0 | 12,541 | 1,311 | 6,682 |
| 501002 | 281 | 0 | 1,747 | 0 | 25,938 | 0 | 0 | 0 | 4,905 | 12,612 | 12,612 |
| 501005 | 381 | 0 | 1,602 | 2 | 1,988 | 26 | 0 | 0 | 5,968 | 72 | 406 |
| 501900 | 1,139 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 287 | 0 | 2 |
| 501999 | 6 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 30 | 6 | 6 |
| 502001 | 2,101 | 4 | 1,988 | 79 | 14,550 | 2,104 | 0 | 0 | 1,837 | 1,228 | 2,646 |
| 502002 | 0 | 0 | 16 | 0 | 577 | 0 | 0 | 0 | 70 | 35 | 177 |
| 502003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 1,881 | 12 | 11,794 | 23 | 0 | 0 | 0 | 0 | 1,924 | 382 | 2,262 |
| 502900 | 535 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 125 | 82 | 187 |
| 503001 | 17,600 | 4 | 7,847 | 93 | 218,560 | 3,091 | 0 | 0 | 19,264 | 5,500 | 28,037 |
| 503002 | 63 | 0 | 666 | 0 | 22,412 | 0 | 0 | 0 | 1,765 | 4,243 | 7,369 |
| 503005 | 875 | 2 | 2,690 | 4 | 351 | 0 | 0 | 0 | 16,130 | 80 | 476 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 |
| 503900 | 2,081 | 0 | 806 | 0 | 2,293 | 0 | 0 | 0 | 589 | 181 | 925 |
| 599999 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 98 |
| Contig. U.S. | 24,504,741 | 725,349 | 9,643,101 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 3,963,258 | 4,657,042 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | | | | | METRIC TONS/YEAR | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 101002 | 14,327,814 | 306,650 | 4,516,987 | 27 | 145,795 | 430,279 | 52,085 | 121 | 473,207 | 23,430 | 23,934 |
| 101003 | 253,611 | 32,678 | 182,606 | 5 | 12,310 | 143 | 143 | 6 | 47,413 | 1,834 | 1,873 |
| 101004 | 1,256,962 | 37,295 | 356,964 | 0 | 36,133 | 0 | 0 | 0 | 49,230 | 11,500 | 12,922 |
| 101005 | 7,583 | 939 | 4,760 | 0 | 1,002 | 0 | 0 | 0 | 85 | 41 | 41 |
| 101006 | 878 | 0 | 675,437 | 0 | 61,972 | 0 | 0 | 0 | 4,191 | 1,236 | 2,809 |
| 102001 | 3,257 | 251 | 1,822 | 0 | 105 | 339 | 15 | 0 | 229 | 9 | 17 |
| 102002 | 1,077,662 | 39,644 | 354,765 | 25 | 31,956 | 28,570 | 11,077 | 9 | 314,953 | 5,856 | 5,982 |
| 102003 | 47,747 | 2,757 | 10,709 | 0 | 3,348 | 234 | 40 | 1 | 22,089 | 120 | 122 |
| 102004 | 948,923 | 20,334 | 255,331 | 0 | 48,309 | 0 | 0 | 0 | 72,206 | 45,601 | 51,239 |
| 102005 | 86,690 | 3,723 | 35,615 | 0 | 7,089 | 0 | 0 | 0 | 5,772 | 14,541 | 14,541 |
| 102006 | 37,652 | 185 | 467,194 | 0 | 97,164 | 0 | 0 | 0 | 15,512 | 11,621 | 26,408 |
| 102007 | 273,564 | 1,011 | 92,497 | 0 | 12,843 | 0 | 0 | 0 | 10,331 | 6,865 | 10,210 |
| 102008 | 4,056 | 15 | 1,094 | 0 | 17,370 | 0 | 0 | 0 | 1,869 | 268 | 274 |
| 102009 | 14,029 | 64,244 | 88,245 | 0 | 93,524 | 0 | 0 | 0 | 83,427 | 56,648 | 57,866 |
| 102010 | 49 | 0 | 161 | 0 | 21 | 0 | 0 | 0 | 53 | 9 | 20 |
| 102011 | 559 | 0 | 1,710 | 0 | 1,309 | 0 | 0 | 0 | 8,049 | 3,677 | 3,677 |
| 102012 | 3,128 | 0 | 1,687 | 0 | 14 | 0 | 0 | 0 | 1,645 | 20 | 20 |
| 102013 | 15,881 | 0 | 2,547 | 332 | 103 | 0 | 0 | 0 | 590 | 58 | 58 |
| 103001 | 280 | 15 | 100 | 0 | 4 | 19 | 0 | 0 | 366 | 3 | 3 |
| 103002 | 75,671 | 2,801 | 17,326 | 1 | 4,023 | 1,569 | 168 | 1 | 26,394 | 861 | 880 |
| 103003 | 1,637 | 108 | 308 | 0 | 309 | 16 | 1 | 0 | 1,869 | 27 | 27 |
| 103004 | 73,821 | 9,162 | 29,478 | 0 | 2,134 | 0 | 0 | 0 | 30,740 | 1,228 | 1,379 |
| 103005 | 18,199 | 898 | 3,167 | 0 | 916 | 0 | 0 | 0 | 9,286 | 796 | 796 |
| 103006 | 562 | 0 | 35,869 | 0 | 4,478 | 0 | 0 | 0 | 1,179 | 1,065 | 2,420 |
| 103009 | 240 | 1,286 | 2,485 | 0 | 1,552 | 0 | 0 | 0 | 961 | 840 | 858 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 |
| 103013 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 5 | 5 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 105001 | 28,849 | 150 | 10,065 | 0 | 39,469 | 0 | 0 | 0 | 2,814 | 3,148 | 4,727 |
| 105002 | 866 | 558 | 823 | 0 | 201 | 0 | 0 | 0 | 119 | 198 | 198 |
| 199999 | 7,870 | 0 | 2,284 | 0 | 452 | 0 | 0 | 0 | 1,106 | 1,116 | 1,116 |
| 201001 | 8,837 | 15 | 28,496 | 0 | 6,345 | 0 | 0 | 0 | 1,984 | 1,800 | 2,103 |
| 201002 | 24 | 0 | 74,155 | 0 | 15,030 | 0 | 0 | 0 | 1,288 | 1,831 | 6,919 |
| 202001 | 2,917 | 12 | 12,313 | 0 | 3,317 | 0 | 0 | 0 | 741 | 1,376 | 1,608 |
| 202002 | 4,461 | 0 | 583,157 | 0 | 102,457 | 0 | 0 | 0 | 2,865 | 11,052 | 75,591 |
| 202003 | 8 | 0 | 150 | 0 | 5,842 | 0 | 0 | 0 | 170 | 249 | 290 |
| 202004 | 9 | 0 | 637 | 0 | 166 | 0 | 0 | 0 | 43 | 16 | 18 |
| 203001 | 9 | 0 | 459 | 0 | 73 | 0 | 0 | 0 | 13 | 17 | 20 |
| 203002 | 3 | 0 | 742 | 0 | 1,239 | 0 | 0 | 0 | 8 | 9 | 66 |
| 204001 | 177 | 0 | 615 | 0 | 430 | 0 | 0 | 0 | 142 | 69 | 494 |
| 204004 | 53 | 0 | 802 | 0 | 1,089 | 0 | 0 | 0 | 191 | 336 | 392 |
| 299999 | 0 | 0 | 485 | 0 | 107 | 0 | 0 | 0 | 0 | 1 | 1 |
| 301001 | 1,329 | 0 | 4,159 | 0 | 25,842 | 0 | 0 | 0 | 88 | 8,272 | 8,272 |
| 301003 | 1,284 | 4 | 6,320 | 0 | 56,412 | 0 | 0 | 2,820 | 470 | 14,033 | 14,033 |
| 301005 | 18,071 | 0 | 1,145 | 0 | 1,670,694 | 0 | 0 | 0 | 2,584 | 171,953 | 171,953 |
| 301006 | 1,651 | 0 | 18,670 | 0 | 64,149 | 0 | 0 | 0 | 69,093 | 85,832 | 85,832 |
| 301007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 660 | 665 |
| 301008 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 49 | 336 | 336 |
| 301009 | 681 | 0 | 107 | 0 | 21 | 0 | 0 | 0 | 938 | 543 | 543 |
| 301010 | 73 | 0 | 2,144 | 0 | 0 | 0 | 0 | 0 | 905 | 648 | 648 |
| 301011 | 0 | 0 | 0 | 0 | 145 | 663 | 0 | 0 | 46 | 38 | 87 |
| 301012 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 925 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 301013 | 6,645 | 0 | 43,483 | 0 | 5,042 | 0 | 0 | 0 | 1,207 | 1,352 | 1,352 |
| 301014 | 4,135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,689 | 14,524 | 14,524 |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 5,402 | 5,402 |
| 301016 | 10,864 | 0 | 0 | 0 | 11 | 0 | 1,497 | 0 | 968 | 0 | 0 |
| 301017 | 1 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 341 | 10 | 10 |
| 301018 | 1,640 | 0 | 276 | 0 | 202 | 0 | 0 | 0 | 53,117 | 95,707 | 96,456 |
| 301019 | 332 | 5 | 0 | 0 | 19,972 | 0 | 0 | 0 | 6,526 | 514 | 1,853 |
| 301020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1,605 | 1,605 |
| 301021 | 220 | 0 | 428 | 0 | 4,511 | 0 | 0 | 0 | 4,420 | 198 | 198 |
| 301022 | 6,990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 327 | 0 | 0 |
| 301023 | 261,997 | 1,297 | 342 | 0 | 1,102 | 0 | 0 | 0 | 14,361 | 56 | 57 |
| 301024 | 6,773 | 0 | 2 | 0 | 3,778 | 0 | 0 | 0 | 1,094 | 15,621 | 15,621 |
| 301025 | 548 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 19,804 | 20,157 |
| 301026 | 4,585 | 0 | 269 | 0 | 17,240 | 0 | 0 | 0 | 1,306 | 81,764 | 81,764 |
| 301027 | 909 | 0 | 1,764 | 0 | 7,368 | 0 | 0 | 203,933 | 10,192 | 41 | 41 |
| 301028 | 952 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,094 | 0 | 0 |
| 301029 | 5,421 | 0 | 14 | 0 | 4 | 0 | 27,056 | 0 | 559 | 3 | 3 |
| 301030 | 7,875 | 0 | 7,408 | 0 | 4 | 0 | 1,754 | 695 | 7,444 | 29 | 29 |
| 301031 | 0 | 0 | 0 | 0 | 32,530 | 0 | 0 | 0 | 262 | 53,049 | 53,049 |
| 301032 | 228,517 | 2,792 | 611 | 0 | 2,126 | 0 | 0 | 0 | 891 | 1,274 | 1,274 |
| 301033 | 717 | 0 | 614 | 0 | 0 | 0 | 0 | 0 | 24 | 2,485 | 2,485 |
| 301034 | 983 | 0 | 3,270 | 0 | 103 | 0 | 0 | 0 | 376 | 2,428 | 2,460 |
| 301035 | 10,201 | 4 | 1,300 | 0 | 24,876 | 0 | 0 | 0 | 1,492 | 4 | 6 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 286 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,361 | 0 | 0 |
| 301041 | 1,732 | 5 | 0 | 0 | 102 | 0 | 0 | 0 | 303 | 2,954 | 3,006 |
| 301042 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 18 | 1,750 | 1,750 |
| 301050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,079 | 1,098 |
| 301060 | 205 | 0 | 11 | 0 | 158 | 0 | 0 | 0 | 3,581 | 1,369 | 1,392 |
| 301091 | 34 | 0 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 723 | 723 |
| 301100 | 0 | 0 | 0 | 0 | 12,010 | 0 | 0 | 0 | 0 | 225 | 225 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 |
| 301120 | 0 | 0 | 7 | 0 | 2 | 0 | 0 | 0 | 343 | 1,224 | 1,224 |
| 301125 | 227 | 0 | 48 | 0 | 0 | 0 | 0 | 0 | 15 | 1,911 | 1,911 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 137 | 227 |
| 301132 | 63 | 0 | 607 | 0 | 159 | 0 | 0 | 0 | 246 | 4,147 | 4,217 |
| 301137 | 435 | 0 | 6 | 0 | 41 | 0 | 0 | 0 | 0 | 294 | 299 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 118 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | 124 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 345 | 345 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,508 | 1,535 |
| 301181 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 90 | 90 |
| 301197 | 2,689 | 0 | 335 | 0 | 1,326 | 0 | 0 | 0 | 55 | 20,868 | 20,868 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 925 | 925 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 472 | 472 |
| 301250 | 1 | 0 | 2,419 | 0 | 3,596 | 0 | 0 | 0 | 5 | 1,244 | 1,244 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 906 | 906 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 96 |
| 301254 | 22 | 0 | 204 | 0 | 5,377 | 0 | 0 | 0 | 0 | 7,579 | 7,579 |
| 301258 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 3 | 6,719 | 6,758 |
| 301820 | 220 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 27 | 1,683 | 1,683 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 0 |

## 1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 301888 | 224 | 0 | 5 | 0 | 33 | 0 | 0 | 0 | 11,404 | 424 | 431 |
| 301900 | 165,666 | 0 | 463 | 0 | 22 | 0 | 0 | 0 | 373 | 591 | 591 |
| 301999 | 52,368 | 0 | 29,724 | 0 | 218,974 | 0 | 0 | 0 | 47,258 | 191,735 | 191,735 |
| 302001 | 1 | 0 | 179 | 0 | 14 | 0 | 0 | 0 | 16,849 | 4 | 4 |
| 302002 | 0 | 0 | 56 | 0 | 44 | 0 | 0 | 0 | 1,794 | 44 | 44 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 0 | 0 |
| 302005 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 40,913 | 0 | 0 |
| 302006 | 5 | 0 | 80 | 0 | 48 | 0 | 0 | 0 | 181,743 | 0 | 0 |
| 302007 | 180 | 0 | 24 | 0 | 3 | 0 | 0 | 0 | 39,119 | 690 | 6,391 |
| 302008 | 464 | 0 | 5 | 0 | 15 | 0 | 0 | 0 | 8,782 | 2 | 2 |
| 302009 | 1,147 | 0 | 115 | 0 | 13 | 0 | 0 | 0 | 1,465 | 367 | 1,970 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 557 | 21,804 | 21,804 |
| 302012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 23 | 305 |
| 302013 | 0 | 0 | 1 | 0 | 65 | 0 | 0 | 0 | 25 | 762 | 778 |
| 302014 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,439 | 0 | 0 |
| 302015 | 1,519 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 1,528 | 0 | 0 |
| 302016 | 634 | 0 | 322 | 0 | 23 | 0 | 0 | 0 | 7,107 | 6 | 6 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 |
| 302018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 215 |
| 302019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 707 | 9,238 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 691 | 2,313 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 133 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 442 | 0 | 0 |
| 302032 | 1,085 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 4 | 52 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,735 | 1,735 |
| 302888 | 0 | 0 | 2 | 0 | 24 | 0 | 0 | 0 | 347 | 14 | 147 |
| 302999 | 1,126 | 0 | 386 | 0 | 15 | 0 | 0 | 0 | 4,641 | 336 | 4,391 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,169 | 0 | 0 |
| 303001 | 79,475 | 509 | 119,114 | 0 | 615,956 | 0 | 8,844 | 0 | 42,620 | 14,024 | 30,027 |
| 303002 | 1,273 | 0 | 893 | 0 | 148 | 0 | 0 | 0 | 19,326 | 8 | 8 |
| 303003 | 68,690 | 11,560 | 3,875 | 0 | 34,471 | 0 | 0 | 6,689 | 53,145 | 29,601 | 63,380 |
| 303004 | 27 | 0 | 4 | 0 | 10 | 0 | 0 | 0 | 1,967 | 36 | 78 |
| 303005 | 997,057 | 32,109 | 942 | 145 | 6,542 | 0 | 0 | 0 | 18,654 | 15 | 18 |
| 303006 | 351 | 0 | 100 | 54 | 256 | 0 | 0 | 0 | 25,589 | 17 | 20 |
| 303007 | 83 | 0 | 0 | 0 | 329 | 0 | 0 | 0 | 1,116 | 0 | 0 |
| 303008 | 57,521 | 670 | 16,036 | 1,130 | 1,012,107 | 0 | 0 | 0 | 148,196 | 3,925 | 16,143 |
| 303009 | 48,773 | 0 | 27,190 | 1,523 | 335,050 | 0 | 0 | 0 | 58,116 | 3,873 | 4,038 |
| 303010 | 52,529 | 1,390 | 3 | 805 | 39,853 | 0 | 0 | 0 | 6,467 | 0 | 0 |
| 303011 | 1,759 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,601 | 66 | 66 |
| 303012 | 0 | 0 | 149 | 0 | 4,530 | 0 | 0 | 0 | 1 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 1,999 | 0 | 187 | 0 | 5,390 | 0 | 0 | 0 | 2,391 | 387 | 387 |
| 303023 | 9,625 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 62,067 | 0 | 0 |
| 303030 | 34,286 | 10,185 | 91 | 349 | 15 | 0 | 0 | 0 | 8,035 | 3 | 5 |
| 303888 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1,677 | 0 | 0 |
| 303999 | 2,502 | 0 | 109 | 0 | 501 | 0 | 0 | 0 | 954 | 76 | 186 |
| 304001 | 985 | 0 | 8,031 | 0 | 892 | 0 | 0 | 0 | 10,504 | 3,313 | 5,234 |
| 304002 | 5 | 0 | 846 | 207 | 3,386 | 0 | 0 | 0 | 4,400 | 161 | 254 |
| 304003 | 6,627 | 8 | 1,158 | 451 | 445,491 | 0 | 0 | 0 | 33,418 | 1,653 | 4,053 |
| 304004 | 24,127 | 89 | 325 | 250 | 145 | 0 | 0 | 0 | 7,884 | 2,987 | 4,718 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

METRIC TONS/YEAR

| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 304006 | 29 | 0 | 3 | 0 | 5,797 | 0 | 0 | 0 | 135 | 0 | 0 |
| 304007 | 6,177 | 0 | 3,385 | 0 | 4,837 | 0 | 0 | 0 | 5,823 | 94 | 231 |
| 304008 | 1,555 | 0 | 559 | 0 | 15 | 0 | 0 | 0 | 2,763 | 3 | 6 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 696 | 0 | 30 | 0 | 3 | 0 | 0 | 0 | 713 | 151 | 151 |
| 304022 | 1 | 0 | 803 | 0 | 24 | 0 | 0 | 0 | 116 | 187 | 295 |
| 304034 | 61 | 0 | 154 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 0 | 0 | 0 | 0 | 503 | 0 | 0 | 0 | 23 | 433 | 683 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 1 | 1 |
| 304999 | 2,429 | 0 | 248 | 0 | 229 | 0 | 0 | 0 | 2,894 | 511 | 807 |
| 305001 | 9 | 0 | 3 | 0 | 2,114 | 0 | 0 | 0 | 4,216 | 2,608 | 2,614 |
| 305002 | 38,414 | 0 | 8,709 | 0 | 5,436 | 0 | 0 | 0 | 66,244 | 562 | 1,277 |
| 305003 | 5,704 | 24 | 3,334 | 0 | 1,797 | 0 | 0 | 0 | 117,001 | 743 | 1,549 |
| 305004 | 151 | 1 | 0 | 0 | 41 | 0 | 0 | 0 | 430 | 278 | 278 |
| 305005 | 752 | 0 | 817 | 0 | 58 | 0 | 0 | 0 | 7,298 | 17 | 41 |
| 305006 | 169,728 | 2,056 | 48,365 | 274 | 1,176 | 0 | 0 | 0 | 122,745 | 393 | 441 |
| 305007 | 144,117 | 6,905 | 53,277 | 188 | 2,020 | 0 | 0 | 0 | 194,550 | 410 | 465 |
| 305008 | 415 | 0 | 114 | 0 | 1 | 0 | 0 | 0 | 19,039 | 32 | 86 |
| 305009 | 428 | 0 | 170 | 0 | 4 | 0 | 0 | 0 | 8,635 | 9 | 26 |
| 305010 | 10,590 | 33 | 3,305 | 0 | 124 | 0 | 0 | 0 | 49,225 | 2,057 | 2,101 |
| 305011 | 0 | 0 | 3,979 | 0 | 78 | 0 | 0 | 0 | 3,199 | 5 | 15 |
| 305012 | 5,019 | 14 | 5,194 | 0 | 934 | 0 | 0 | 0 | 17,264 | 1,343 | 3,836 |
| 305013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 67 | 191 |
| 305014 | 25,948 | 79 | 38,836 | 899 | 9,811 | 0 | 0 | 0 | 13,412 | 1,769 | 4,825 |
| 305015 | 235 | 11,980 | 62 | 0 | 15 | 0 | 0 | 0 | 19,645 | 7 | 10 |
| 305016 | 14,458 | 0 | 24,940 | 0 | 26,954 | 0 | 0 | 0 | 78,830 | 916 | 935 |
| 305017 | 1,159 | 0 | 116 | 0 | 9,803 | 0 | 0 | 0 | 2,820 | 45 | 71 |
| 305018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 978 | 45 | 128 |
| 305019 | 24,029 | 0 | 588 | 0 | 3 | 0 | 0 | 0 | 15,795 | 0 | 1 |
| 305020 | 1,817 | 0 | 591 | 0 | 30 | 0 | 0 | 0 | 321,754 | 54 | 155 |
| 305021 | 399 | 0 | 563 | 0 | 0 | 0 | 0 | 0 | 750 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,295 | 0 | 0 |
| 305024 | 0 | 0 | 58 | 0 | 39 | 0 | 0 | 0 | 12,346 | 0 | 0 |
| 305025 | 71 | 0 | 58 | 0 | 3 | 0 | 0 | 0 | 19,200 | 1 | 2 |
| 305026 | 3 | 0 | 9 | 0 | 5 | 0 | 0 | 0 | 560 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 265 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 75 | 858 | 2,452 |
| 305040 | 5,002 | 0 | 2,239 | 0 | 347 | 0 | 0 | 0 | 29,445 | 37 | 105 |
| 305100 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,119 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 575 | 0 | 0 |
| 305888 | 265 | 0 | 0 | 0 | 234 | 0 | 0 | 0 | 2,918 | 158 | 158 |
| 305999 | 6,269 | 0 | 1,608 | 0 | 7,513 | 0 | 0 | 0 | 33,530 | 1,958 | 5,595 |
| 306001 | 269,085 | 678 | 176,096 | 0 | 16,678 | 0 | 0 | 0 | 16,993 | 5,696 | 10,347 |
| 306002 | 239,149 | 7,796 | 41,372 | 0 | 1,236,986 | 0 | 0 | 7,645 | 41,514 | 57,459 | 89,771 |
| 306003 | 8,595 | 10 | 409 | 0 | 93,256 | 0 | 0 | 79 | 2,810 | 2,081 | 3,251 |
| 306004 | 11,023 | 51 | 7,759 | 0 | 1,733 | 0 | 0 | 0 | 15 | 14,182 | 16,617 |
| 306005 | 1,219 | 0 | 13 | 0 | 31 | 0 | 0 | 0 | 218 | 97,232 | 101,939 |
| 306006 | 1,115 | 0 | 107 | 0 | 8 | 0 | 0 | 0 | 5 | 31,343 | 38,524 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,215 | 6,215 |
| 306008 | 1,800 | 0 | 2,255 | 0 | 120 | 0 | 0 | 0 | 168 | 74,000 | 84,464 |
| 306009 | 14,591 | 0 | 1,637 | 0 | 94 | 0 | 0 | 0 | 355 | 5,270 | 10,542 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,287 | 1,287 |
| 306011 | 76 | 0 | 47 | 0 | 352 | 0 | 0 | 0 | 33 | 45,366 | 54,728 |
| 306012 | 17,650 | 0 | 1,896 | 0 | 5 | 0 | 0 | 0 | 46,617 | 1,749 | 2,733 |
| 306014 | 3,648 | 0 | 1,099 | 0 | 43 | 0 | 0 | 0 | 1,620 | 214 | 486 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,537 | 2,537 |
| 306888 | 425 | 0 | 219 | 0 | 0 | 0 | 0 | 0 | 158 | 19,044 | 27,355 |
| 306999 | 55,433 | 0 | 5,131 | 0 | 52,092 | 0 | 0 | 0 | 3,063 | 32,563 | 49,640 |
| 307001 | 96,249 | 37,714 | 43,047 | 0 | 647,521 | 0 | 0 | 0 | 71,313 | 10,445 | 10,598 |
| 307002 | 27,594 | 4,939 | 1,675 | 0 | 250 | 0 | 0 | 0 | 2,510 | 215 | 215 |
| 307003 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 160 | 160 |
| 307004 | 0 | 0 | 50 | 0 | 0 | 0 | 0 | 0 | 1,127 | 1,957 | 1,957 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 221 | 221 |
| 307007 | 337 | 0 | 4,355 | 0 | 1,334 | 0 | 0 | 0 | 41,480 | 5,950 | 5,950 |
| 307008 | 2,788 | 0 | 3,328 | 0 | 692 | 0 | 0 | 0 | 11,994 | 1,745 | 1,745 |
| 307011 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,700 | 7,700 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 | 142 |
| 307020 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,039 | 4,154 | 4,154 |
| 307030 | 6 | 0 | 44 | 0 | 134 | 0 | 0 | 0 | 2,485 | 171 | 171 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 765 | 648 | 648 |
| 307999 | 834 | 0 | 620 | 0 | 8,674 | 0 | 0 | 0 | 4,756 | 1,467 | 1,467 |
| 308001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 10,046 | 10,046 |
| 308006 | 0 | 0 | 111 | 0 | 31 | 0 | 0 | 0 | 230 | 937 | 937 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 6,181 | 6,181 |
| 309001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 423 | 669 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 694 | 0 | 0 |
| 309010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 1,807 | 2,502 |
| 309011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 61 |
| 309020 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 55 | 4,037 | 6,378 |
| 309030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,421 | 684 | 948 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 0 | 0 |
| 309888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81,898 | 63 | 87 |
| 309999 | 127 | 0 | 354 | 0 | 3 | 0 | 0 | 0 | 1,834 | 2,901 | 2,901 |
| 310001 | 942 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 653 | 11,920 | 11,920 |
| 310002 | 975 | 5 | 2,635 | 0 | 1,445 | 0 | 0 | 0 | 455 | 730 | 782 |
| 312999 | 0 | 0 | 6 | 0 | 2 | 0 | 0 | 0 | 218 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 380 | 380 |
| 330001 | 39 | 0 | 17 | 0 | 3 | 0 | 0 | 0 | 1,110 | 20,300 | 20,300 |
| 330002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 3,417 | 3,417 |
| 330003 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 77 | 74 | 74 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 85 | 85 |
| 390001 | 819 | 0 | 1,841 | 0 | 109 | 0 | 0 | 0 | 388 | 5 | 5 |
| 390002 | 65,221 | 174 | 2,507 | 0 | 26,743 | 0 | 0 | 0 | 7,774 | 602 | 615 |
| 390004 | 42,565 | 58 | 6,066 | 0 | 912 | 0 | 0 | 0 | 2,773 | 1,559 | 1,752 |
| 390005 | 3,655 | 8 | 3,221 | 0 | 1,619 | 0 | 0 | 0 | 3,857 | 780 | 780 |
| 390006 | 34,611 | 99 | 25,603 | 0 | 47,409 | 0 | 0 | 0 | 10,368 | 10,216 | 23,127 |
| 390007 | 12,159 | 0 | 2,158 | 0 | 20,158 | 0 | 0 | 0 | 2,282 | 212 | 367 |
| 390008 | 5,081 | 2 | 1,008 | 0 | 30,990 | 0 | 0 | 0 | 386 | 42 | 42 |
| 390009 | 0 | 0 | 310 | 0 | 0 | 0 | 0 | 0 | 1,462 | 118 | 118 |
| 390010 | 0 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 767 | 686 | 1,558 |
| 390012 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 26,501 | 0 | 13,245 | 0 | 70,002 | 0 | 0 | 0 | 44,356 | 82,052 | 186,464 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,925 | 6,925 |
| 401002 | 297 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 186 | 91,100 | 91,100 |
| 401003 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 836 | 836 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 369 | 369 |
| 401913 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 60 |
| 402001 | 2 | 0 | 288 | 0 | 76 | 0 | 0 | 0 | 992 | 222,751 | 222,751 |
| 402002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,828 | 1,828 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 30,852 | 30,852 |
| 402004 | 0 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 413 | 127,670 | 127,670 |
| 402005 | 0 | 0 | 269 | 0 | 166 | 0 | 0 | 0 | 441 | 111,179 | 111,179 |
| 402006 | 0 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 1,024 | 71,317 | 71,317 |
| 402007 | 2 | 0 | 16 | 0 | 1,858 | 0 | 0 | 0 | 63 | 20,478 | 20,478 |
| 402008 | 175 | 0 | 163 | 0 | 522 | 0 | 0 | 0 | 1,364 | 19,384 | 55,748 |
| 402009 | 1 | 0 | 562 | 0 | 38 | 0 | 0 | 0 | 742 | 200,625 | 200,625 |
| 402010 | 0 | 0 | 45 | 0 | 12 | 0 | 0 | 0 | 10 | 3,500 | 3,500 |
| 402011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,749 | 1,749 |
| 402013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,985 | 14,985 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 93 |
| 402016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 837 | 837 |
| 402017 | 0 | 0 | 450 | 0 | 75 | 0 | 0 | 0 | 0 | 28,821 | 29,064 |
| 402018 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 285 | 285 |
| 402019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 306 | 306 |
| 402020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 431 | 471 |
| 402021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 | 127 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,590 | 4,590 |
| 402023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 222 | 222 |
| 402024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 16 | 16 |
| 402025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,501 | 1,501 |
| 402888 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,391 | 26,391 |
| 402901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 58 |
| 402999 | 0 | 0 | 621 | 0 | 505 | 0 | 0 | 0 | 7,914 | 80,558 | 80,558 |
| 403001 | 386 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 1,560 | 146,533 | 155,033 |
| 403002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 60,472 | 61,082 |
| 403003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,482 | 3,509 |
| 403010 | 0 | 0 | 91 | 0 | 60,679 | 0 | 0 | 0 | 324 | 37,626 | 38,351 |
| 403011 | 3,946 | 0 | 882 | 0 | 30,340 | 0 | 0 | 0 | 1,007 | 31,518 | 31,738 |
| 403012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,256 | 21,256 |
| 403888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,198 | 4,296 |
| 403999 | 202 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 326 | 27,011 | 27,011 |
| 404001 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 0 | 2,705 | 103,358 | 103,358 |
| 404002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,000 | 2,000 |
| 405001 | 0 | 0 | 10 | 0 | 13 | 0 | 0 | 0 | 48 | 22,055 | 91,935 |
| 405002 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 3,324 | 13,750 |
| 405003 | 0 | 0 | 263 | 0 | 34 | 0 | 0 | 0 | 41 | 13,920 | 13,920 |
| 405004 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 24,978 | 24,978 |
| 405005 | 0 | 0 | 27 | 0 | 15 | 0 | 0 | 0 | 384 | 60,450 | 60,450 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 381 | 381 |
| 405888 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 509 | 957 |
| 406001 | 0 | 0 | 0 | 0 | 91,019 | 0 | 0 | 0 | 1,576 | 82,286 | 82,970 |
| 406002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 19,730 | 20,516 |
| 406003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 5,215 | 5,215 |
| 406004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 8,043 | 8,043 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 406888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,855 | 2,855 |
| 490001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,920 | 2,633 |
| 490999 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 404 | 86,421 | 118,510 |
| 501001 | 4,828 | 8 | 5,062 | 130 | 52,619 | 4,860 | 0 | 0 | 11,377 | 1,189 | 6,062 |
| 501002 | 255 | 0 | 1,585 | 0 | 23,531 | 0 | 0 | 0 | 4,450 | 11,442 | 11,442 |
| 501005 | 346 | 0 | 1,453 | 2 | 1,804 | 24 | 0 | 0 | 5,414 | 66 | 368 |
| 501900 | 1,033 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 260 | 0 | 2 |
| 501999 | 5 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 27 | 5 | 5 |
| 502001 | 1,906 | 4 | 1,804 | 72 | 13,200 | 1,909 | 0 | 0 | 1,667 | 1,114 | 2,400 |
| 502002 | 0 | 0 | 15 | 0 | 523 | 0 | 0 | 0 | 64 | 31 | 161 |
| 502003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 1,706 | 11 | 10,700 | 21 | 0 | 0 | 0 | 0 | 1,745 | 347 | 2,052 |
| 502900 | 485 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 113 | 75 | 170 |
| 503001 | 15,967 | 4 | 7,119 | 84 | 198,278 | 2,804 | 0 | 0 | 17,476 | 4,989 | 25,435 |
| 503002 | 57 | 0 | 604 | 0 | 20,332 | 0 | 0 | 0 | 1,601 | 3,849 | 6,685 |
| 503005 | 794 | 2 | 2,440 | 4 | 318 | 0 | 0 | 0 | 14,633 | 73 | 432 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 0 |
| 503900 | 1,888 | 0 | 731 | 0 | 2,080 | 0 | 0 | 0 | 534 | 165 | 839 |
| 599999 | 142 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 89 |
| Contig. U.S. | 22,230,755 | 658,038 | 8,748,242 | 6,981 | 8,281,040 | 471,429 | 102,680 | 222,688 | 3,959,255 | 3,595,476 | 4,224,879 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alabama | 777,509 | 28,739 | 231,517 | 185 | 283,116 | 19,291 | 3,518 | 602 | 81,327 | 52,531 | 66,836 |
| Arizona | 824,136 | 29,305 | 106,764 | 73 | 64,834 | 8,862 | 1,071 | 5,009 | 27,451 | 13,246 | 13,948 |
| Arkansas | 55,654 | 8,336 | 43,525 | 1 | 135,410 | 1,761 | 1,413 | 12,324 | 33,610 | 15,425 | 16,385 |
| California | 390,765 | 22,801 | 325,900 | 216 | 354,357 | 0 | 131 | 4,653 | 135,939 | 296,959 | 353,118 |
| Colorado | 117,379 | 7,626 | 139,517 | 442 | 110,700 | 9,054 | 1,186 | 7,795 | 53,026 | 16,536 | 22,616 |
| Connecticut | 34,524 | 2,228 | 22,506 | 78 | 11,759 | 386 | 0 | 0 | 8,160 | 24,045 | 24,771 |
| Delaware | 96,889 | 1,965 | 25,970 | 1 | 8,526 | 1,106 | 184 | 1 | 16,575 | 25,868 | 27,329 |
| Dist. of Colum. | 7,164 | 399 | 2,616 | 2 | 4,109 | 589 | 7 | 0 | 863 | 451 | 1,169 |
| Florida | 1,018,759 | 25,261 | 318,374 | 23 | 145,583 | 8,670 | 29,030 | 21,887 | 100,437 | 48,306 | 51,735 |
| Georgia | 862,393 | 27,802 | 279,517 | 45 | 162,451 | 20,392 | 2,486 | 19,889 | 41,780 | 27,300 | 28,379 |
| Idaho | 36,610 | 6,598 | 8,820 | 449 | 41,789 | 314 | 173 | 121 | 12,020 | 2,608 | 4,649 |
| Illinois | 1,350,414 | 33,150 | 466,947 | 1,518 | 312,428 | 33,310 | 7,890 | 39,976 | 197,188 | 153,055 | 200,212 |
| Indiana | 1,826,567 | 28,766 | 459,329 | 462 | 296,070 | 33,163 | 4,487 | 11,695 | 201,252 | 87,406 | 116,818 |
| Iowa | 307,348 | 9,629 | 125,308 | 71 | 54,874 | 11,434 | 1,701 | 19,260 | 151,474 | 17,782 | 20,263 |
| Kansas | 193,588 | 6,128 | 214,230 | 1 | 61,361 | 6,552 | 792 | 96 | 43,258 | 40,304 | 73,307 |
| Kentucky | 1,098,360 | 18,018 | 313,443 | 107 | 117,028 | 22,400 | 3,768 | 116 | 127,561 | 102,788 | 116,606 |
| Louisiana | 236,911 | 14,000 | 435,240 | 49 | 998,666 | 736 | 1,663 | 21,860 | 118,871 | 295,753 | 322,789 |
| Maine | 114,789 | 7,242 | 20,741 | 1 | 44,700 | 26 | 3 | 0 | 18,217 | 17,888 | 18,945 |
| Maryland | 275,263 | 6,203 | 91,346 | 5 | 33,723 | 6,546 | 1,260 | 2 | 36,069 | 59,894 | 76,098 |
| Massachusetts | 297,037 | 5,977 | 77,625 | 162 | 14,048 | 2,155 | 84 | 0 | 17,624 | 94,270 | 117,747 |
| Michigan | 797,627 | 24,456 | 335,672 | 176 | 271,202 | 22,683 | 3,139 | 228 | 143,924 | 195,994 | 216,766 |
| Minnesota | 210,481 | 9,566 | 134,826 | 10 | 33,932 | 8,659 | 1,113 | 16,428 | 130,576 | 65,852 | 68,438 |
| Mississippi | 251,012 | 7,051 | 96,489 | 0 | 82,975 | 2,587 | 314 | 358 | 24,231 | 52,561 | 57,773 |
| Missouri | 1,270,841 | 16,895 | 288,037 | 288 | 80,142 | 22,038 | 2,663 | 6 | 311,839 | 170,834 | 183,961 |
| Montana | 146,533 | 6,039 | 38,000 | 213 | 139,579 | 1,994 | 243 | 185 | 19,205 | 12,081 | 15,086 |
| Nebraska | 64,214 | 3,388 | 52,703 | 30 | 10,148 | 4,577 | 577 | 354 | 43,613 | 45,451 | 46,423 |
| Nevada | 140,938 | 6,114 | 47,637 | 6 | 13,032 | 3,515 | 442 | 1 | 28,465 | 3,398 | 3,562 |
| New Hampshire | 96,421 | 2,619 | 26,907 | 0 | 4,914 | 1,026 | 124 | 0 | 4,000 | 16,682 | 17,636 |
| New Jersey | 233,574 | 6,520 | 132,399 | 0 | 83,692 | 2,442 | 302 | 12 | 98,206 | 104,827 | 119,935 |
| New Mexico | 250,262 | 7,939 | 157,193 | 4 | 26,933 | 8,295 | 977 | 150 | 34,495 | 37,202 | 51,033 |
| New York | 760,082 | 23,645 | 287,899 | 16 | 113,978 | 9,200 | 1,875 | 3 | 245,892 | 90,149 | 141,636 |
| North Carolina | 605,426 | 22,669 | 256,959 | 21 | 126,370 | 23,513 | 3,070 | 8,664 | 115,851 | 82,978 | 100,142 |
| North Dakota | 95,891 | 10,188 | 72,347 | 5 | 55,560 | 71 | 47 | 200 | 48,845 | 2,616 | 3,423 |
| Ohio | 2,615,591 | 42,357 | 653,973 | 976 | 690,969 | 50,337 | 7,179 | 1,802 | 277,919 | 120,764 | 150,742 |
| Oklahoma | 83,987 | 7,332 | 158,265 | 4 | 338,386 | 5,740 | 763 | 1,405 | 67,489 | 63,340 | 73,889 |
| Oregon | 24,497 | 13,985 | 44,894 | 20 | 30,413 | 544 | 92 | 0 | 33,286 | 29,815 | 36,281 |
| Pennsylvania | 1,783,153 | 43,985 | 495,679 | 763 | 470,810 | 41,375 | 5,504 | 8,552 | 187,784 | 132,321 | 162,706 |
| Rhode Island | 7,102 | 288 | 3,871 | 4 | 2,014 | 14 | 0 | 0 | 1,065 | 9,836 | 11,124 |
| South Carolina | 316,336 | 14,823 | 124,920 | 85 | 79,221 | 8,973 | 1,596 | 1,020 | 142,530 | 210,703 | 221,994 |
| South Dakota | 33,897 | 3,252 | 25,340 | 5 | 15,218 | 220 | 37 | 1 | 33,423 | 2,044 | 3,023 |
| Tennessee | 1,120,219 | 23,980 | 286,292 | 143 | 153,761 | 23,266 | 4,243 | 10,293 | 114,674 | 134,184 | 143,795 |
| Texas | 1,053,679 | 47,897 | 1,308,304 | 374 | 2,126,155 | 18,937 | 5,841 | 11,535 | 388,434 | 761,649 | 900,425 |
| Utah | 88,412 | 7,179 | 57,610 | 43 | 33,766 | 3,547 | 495 | 52 | 61,873 | 7,961 | 9,248 |
| Vermont | 1,543 | 37 | 287 | 0 | 39 | 9 | 0 | 0 | 1,544 | 2,804 | 3,047 |
| Virginia | 304,930 | 13,159 | 123,312 | 34 | 386,565 | 7,047 | 1,318 | 4,539 | 109,050 | 86,880 | 99,831 |
| Washington | 268,669 | 14,207 | 71,259 | 87 | 221,531 | 4,942 | 1,488 | 10,076 | 86,100 | 40,651 | 43,628 |
| West Virginia | 1,130,784 | 25,524 | 338,340 | 415 | 153,195 | 29,055 | 4,861 | 8 | 60,484 | 4,861 | 5,487 |
| Wisconsin | 642,486 | 18,129 | 182,023 | 79 | 45,510 | 15,215 | 2,310 | 651 | 98,764 | 63,719 | 70,106 |
| Wyoming | 184,096 | 11,953 | 132,429 | 3 | 82,566 | 13,084 | 1,723 | 3,660 | 27,984 | 18,685 | 22,183 |
| Contig. U.S. | 24,504,741 | 725,349 | 9,643,101 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 3,963,258 | 4,657,042 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | | | | | | METRIC TONS/YEAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alabama | 705,358 | 26,072 | 210,033 | 168 | 256,843 | 17,501 | 3,192 | 546 | 73,780 | 47,657 | 60,634 |
| Arizona | 747,658 | 26,586 | 96,857 | 66 | 58,818 | 8,040 | 972 | 4,544 | 24,904 | 12,017 | 12,654 |
| Arkansas | 50,489 | 7,562 | 39,486 | 1 | 122,844 | 1,598 | 1,282 | 11,180 | 30,491 | 13,994 | 14,865 |
| California | 354,503 | 20,685 | 295,657 | 196 | 321,473 | 0 | 119 | 4,221 | 123,324 | 269,401 | 320,350 |
| Colorado | 106,486 | 6,918 | 126,570 | 401 | 100,427 | 8,214 | 1,076 | 7,072 | 48,106 | 15,002 | 20,517 |
| Connecticut | 31,320 | 2,021 | 20,417 | 71 | 10,668 | 350 | 0 | 0 | 7,403 | 21,814 | 22,472 |
| Delaware | 87,898 | 1,783 | 23,560 | 1 | 7,735 | 1,003 | 167 | 1 | 15,037 | 23,468 | 24,793 |
| Dist. of Colum. | 6,499 | 362 | 2,373 | 2 | 3,728 | 534 | 6 | 0 | 783 | 409 | 1,060 |
| Florida | 924,220 | 22,917 | 288,830 | 21 | 132,073 | 7,865 | 26,336 | 19,856 | 91,117 | 43,824 | 46,934 |
| Georgia | 782,365 | 25,222 | 253,578 | 41 | 147,376 | 18,500 | 2,255 | 18,043 | 37,903 | 24,766 | 25,746 |
| Idaho | 33,213 | 5,986 | 8,002 | 407 | 37,911 | 285 | 157 | 110 | 10,905 | 2,366 | 4,217 |
| Illinois | 1,225,099 | 30,074 | 423,615 | 1,377 | 283,435 | 30,219 | 7,158 | 36,266 | 178,889 | 138,852 | 181,633 |
| Indiana | 1,657,066 | 26,097 | 416,704 | 419 | 268,595 | 30,086 | 4,071 | 10,610 | 182,576 | 79,295 | 105,977 |
| Iowa | 278,827 | 8,735 | 113,680 | 64 | 49,782 | 10,373 | 1,543 | 17,473 | 137,417 | 16,132 | 18,383 |
| Kansas | 175,623 | 5,559 | 194,350 | 1 | 55,667 | 5,944 | 719 | 87 | 39,244 | 36,564 | 66,504 |
| Kentucky | 996,435 | 16,346 | 284,356 | 97 | 106,168 | 20,321 | 3,418 | 105 | 115,724 | 93,249 | 105,785 |
| Louisiana | 214,926 | 12,701 | 394,851 | 44 | 905,992 | 668 | 1,509 | 19,831 | 107,840 | 268,308 | 292,835 |
| Maine | 104,137 | 6,570 | 18,816 | 1 | 40,552 | 24 | 3 | 0 | 16,527 | 16,228 | 17,187 |
| Maryland | 249,719 | 5,627 | 82,869 | 5 | 30,594 | 5,939 | 1,143 | 2 | 32,722 | 54,336 | 69,036 |
| Massachusetts | 269,473 | 5,422 | 70,422 | 147 | 12,744 | 1,955 | 76 | 0 | 15,989 | 85,522 | 106,820 |
| Michigan | 723,609 | 22,187 | 304,522 | 160 | 246,035 | 20,578 | 2,848 | 207 | 130,568 | 177,806 | 196,651 |
| Minnesota | 190,949 | 8,678 | 122,314 | 9 | 30,783 | 7,855 | 1,010 | 14,903 | 118,459 | 59,741 | 62,087 |
| Mississippi | 227,719 | 6,397 | 87,535 | 0 | 75,275 | 2,347 | 285 | 324 | 21,982 | 47,683 | 52,411 |
| Missouri | 1,152,910 | 15,327 | 261,308 | 261 | 72,705 | 19,993 | 2,416 | 6 | 282,901 | 154,981 | 166,890 |
| Montana | 132,935 | 5,479 | 34,474 | 193 | 126,626 | 1,809 | 220 | 168 | 17,423 | 10,960 | 13,686 |
| Nebraska | 58,255 | 3,074 | 47,812 | 27 | 9,206 | 4,152 | 523 | 322 | 39,566 | 41,233 | 42,115 |
| Nevada | 127,859 | 5,547 | 43,216 | 5 | 11,823 | 3,189 | 401 | 1 | 25,824 | 3,083 | 3,231 |
| New Hampshire | 87,473 | 2,376 | 24,410 | 0 | 4,458 | 931 | 112 | 0 | 3,629 | 15,134 | 15,999 |
| New Jersey | 211,899 | 5,915 | 120,113 | 0 | 75,926 | 2,215 | 274 | 11 | 89,093 | 95,099 | 108,806 |
| New Mexico | 227,038 | 7,202 | 142,606 | 4 | 24,434 | 7,525 | 886 | 136 | 31,294 | 33,750 | 46,297 |
| New York | 689,548 | 21,451 | 261,183 | 15 | 103,401 | 8,346 | 1,701 | 2 | 223,074 | 81,784 | 128,493 |
| North Carolina | 549,244 | 20,565 | 233,114 | 19 | 114,643 | 21,331 | 2,785 | 7,860 | 105,100 | 75,278 | 90,849 |
| North Dakota | 86,993 | 9,243 | 65,633 | 5 | 50,404 | 64 | 43 | 182 | 44,312 | 2,374 | 3,106 |
| Ohio | 2,372,870 | 38,426 | 593,286 | 885 | 626,849 | 45,666 | 6,513 | 1,635 | 252,129 | 109,557 | 136,754 |
| Oklahoma | 76,193 | 6,652 | 143,578 | 4 | 306,985 | 5,207 | 692 | 1,274 | 61,226 | 57,462 | 67,032 |
| Oregon | 22,224 | 12,687 | 40,728 | 18 | 27,591 | 494 | 83 | 0 | 30,197 | 27,048 | 32,915 |
| Pennsylvania | 1,617,680 | 39,903 | 449,681 | 692 | 427,120 | 37,535 | 4,993 | 7,758 | 170,358 | 120,042 | 147,607 |
| Rhode Island | 6,443 | 261 | 3,512 | 4 | 1,827 | 13 | 0 | 0 | 966 | 8,924 | 10,092 |
| South Carolina | 286,981 | 13,447 | 113,328 | 77 | 71,869 | 8,140 | 1,448 | 925 | 129,304 | 191,151 | 201,394 |
| South Dakota | 30,751 | 2,950 | 22,989 | 5 | 13,806 | 200 | 34 | 1 | 30,321 | 1,854 | 2,743 |
| Tennessee | 1,016,265 | 21,755 | 259,725 | 130 | 139,492 | 21,107 | 3,849 | 9,338 | 104,033 | 121,732 | 130,451 |
| Texas | 955,900 | 43,452 | 1,186,896 | 339 | 1,928,852 | 17,180 | 5,299 | 10,464 | 352,388 | 690,969 | 816,867 |
| Utah | 80,207 | 6,513 | 52,264 | 39 | 30,633 | 3,218 | 449 | 47 | 56,131 | 7,222 | 8,390 |
| Vermont | 1,400 | 34 | 260 | 0 | 35 | 8 | 0 | 0 | 1,401 | 2,544 | 2,764 |
| Virginia | 276,633 | 11,938 | 111,869 | 31 | 350,693 | 6,393 | 1,196 | 4,118 | 98,930 | 78,818 | 90,567 |
| Washington | 243,737 | 12,889 | 64,646 | 79 | 200,973 | 4,483 | 1,350 | 9,141 | 78,110 | 36,878 | 39,580 |
| West Virginia | 1,025,850 | 23,155 | 306,943 | 376 | 138,979 | 26,359 | 4,410 | 8 | 54,871 | 4,410 | 4,978 |
| Wisconsin | 582,865 | 16,447 | 165,132 | 72 | 41,287 | 13,803 | 2,096 | 591 | 89,599 | 57,806 | 63,600 |
| Wyoming | 167,012 | 10,844 | 120,140 | 3 | 74,904 | 11,870 | 1,563 | 3,320 | 25,387 | 16,951 | 20,125 |
| Contig. U.S. | 22,230,755 | 658,038 | 8,748,242 | 6,981 | 8,281,040 | 471,429 | 102,680 | 222,688 | 3,959,255 | 3,595,476 | 4,224,879 |

## 1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| REGION 1 | 551,416 | 18,391 | 151,937 | 245 | 77,474 | 3,616 | 211 | 1 | 50,610 | 165,525 | 193,270 |
| REGION 2 | 993,656 | 30,165 | 420,298 | 16 | 197,670 | 11,642 | 2,177 | 15 | 344,098 | 194,976 | 261,572 |
| REGION 3 | 3,598,182 | 91,235 | 1,077,263 | 1,220 | 1,056,928 | 85,718 | 13,134 | 13,102 | 410,825 | 310,275 | 372,620 |
| REGION 4 | 6,050,014 | 168,343 | 1,907,511 | 609 | 1,150,505 | 129,092 | 48,025 | 62,827 | 748,391 | 711,351 | 787,258 |
| REGION 5 | 7,443,167 | 156,424 | 2,232,770 | 3,221 | 1,650,111 | 163,367 | 26,118 | 70,781 | 1,049,623 | 686,791 | 823,082 |
| REGION 6 | 1,680,493 | 85,504 | 2,102,527 | 432 | 3,625,550 | 35,469 | 10,657 | 47,272 | 642,899 | 1,173,369 | 1,364,521 |
| REGION 7 | 1,835,991 | 36,040 | 680,278 | 390 | 206,525 | 44,601 | 5,733 | 19,717 | 550,184 | 274,370 | 323,954 |
| REGION 8 | 666,208 | 46,237 | 465,243 | 711 | 437,389 | 27,970 | 3,731 | 11,893 | 244,356 | 59,924 | 75,580 |
| REGION 9 | 1,355,839 | 58,220 | 480,301 | 295 | 432,223 | 12,377 | 1,644 | 9,663 | 191,855 | 313,603 | 370,628 |
| REGION 10 | 329,776 | 34,790 | 124,973 | 556 | 293,733 | 5,800 | 1,753 | 10,197 | 131,406 | 73,074 | 84,559 |
| Contig. U.S. | 24,504,741 | 725,349 | 9,643,101 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 3,963,258 | 4,657,042 |

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| REGION 1 | 500,245 | 16,684 | 137,838 | 222 | 70,285 | 3,280 | 191 | 0 | 45,914 | 150,164 | 175,335 |
| REGION 2 | 901,447 | 27,366 | 381,295 | 15 | 179,327 | 10,562 | 1,975 | 14 | 312,166 | 176,883 | 237,298 |
| REGION 3 | 3,264,279 | 82,769 | 977,295 | 1,107 | 958,847 | 77,764 | 11,915 | 11,886 | 372,701 | 281,482 | 338,042 |
| REGION 4 | 5,488,586 | 152,721 | 1,730,498 | 552 | 1,043,741 | 117,113 | 43,568 | 56,997 | 678,942 | 645,340 | 714,202 |
| REGION 5 | 6,752,457 | 141,908 | 2,025,574 | 2,922 | 1,496,984 | 148,207 | 23,694 | 64,213 | 952,220 | 623,058 | 746,702 |
| REGION 6 | 1,524,547 | 77,569 | 1,907,417 | 392 | 3,289,107 | 32,178 | 9,668 | 42,885 | 583,239 | 1,064,483 | 1,237,896 |
| REGION 7 | 1,665,615 | 32,696 | 617,150 | 354 | 187,360 | 40,462 | 5,201 | 17,887 | 499,128 | 248,909 | 293,891 |
| REGION 8 | 604,385 | 41,946 | 422,069 | 645 | 396,800 | 25,374 | 3,385 | 10,789 | 221,681 | 54,363 | 68,566 |
| REGION 9 | 1,230,020 | 52,817 | 435,730 | 268 | 392,114 | 11,228 | 1,491 | 8,766 | 174,051 | 284,501 | 336,235 |
| REGION 10 | 299,174 | 31,562 | 113,376 | 504 | 266,475 | 5,262 | 1,590 | 9,251 | 119,212 | 66,293 | 76,712 |
| Contig. U.S. | 22,230,755 | 658,038 | 8,748,242 | 6,981 | 8,281,040 | 471,429 | 102,680 | 222,688 | 3,959,255 | 3,595,476 | 4,224,879 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alabama | 857,549 | 32,991 | 487,256 | 681 | 1,811,119 | 19,542 | 3,539 | 11,964 | 439,271 | 391,455 | 425,591 |
| Arizona | 844,078 | 30,871 | 263,894 | 366 | 1,310,433 | 8,937 | 1,087 | 11,921 | 841,489 | 254,096 | 271,243 |
| Arkansas | 87,127 | 10,478 | 211,143 | 264 | 1,045,560 | 1,786 | 1,445 | 25,418 | 874,245 | 223,135 | 234,377 |
| California | 519,799 | 35,917 | 1,382,764 | 2,643 | 9,524,250 | 472 | 145 | 32,013 | 1,536,414 | 2,216,485 | 2,414,927 |
| Colorado | 140,138 | 9,347 | 304,778 | 756 | 2,302,185 | 9,110 | 1,186 | 24,987 | 1,134,995 | 356,946 | 385,554 |
| Connecticut | 63,665 | 8,110 | 139,750 | 381 | 1,192,328 | 491 | 0 | 1,946 | 120,226 | 284,183 | 299,090 |
| Delaware | 124,669 | 4,645 | 62,266 | 71 | 242,885 | 1,152 | 184 | 2,051 | 49,382 | 77,101 | 81,188 |
| Dist. of Colum. | 15,325 | 1,121 | 25,352 | 39 | 338,780 | 655 | 23 | 59 | 15,099 | 44,081 | 48,400 |
| Florida | 1,102,994 | 30,793 | 712,209 | 1,087 | 4,071,755 | 8,834 | 29,228 | 28,793 | 919,841 | 828,561 | 868,694 |
| Georgia | 900,080 | 30,684 | 590,650 | 697 | 2,335,826 | 20,453 | 2,503 | 35,359 | 882,031 | 508,361 | 530,222 |
| Idaho | 56,210 | 8,676 | 91,874 | 548 | 1,280,507 | 329 | 242 | 8,133 | 330,728 | 222,050 | 230,398 |
| Illinois | 1,464,520 | 42,270 | 972,987 | 2,635 | 4,246,797 | 34,318 | 7,937 | 68,633 | 932,702 | 988,586 | 1,092,842 |
| Indiana | 1,970,870 | 38,111 | 786,843 | 1,101 | 2,374,627 | 33,494 | 4,607 | 29,361 | 496,649 | 562,647 | 623,821 |
| Iowa | 334,278 | 11,010 | 305,754 | 427 | 1,105,666 | 11,505 | 1,706 | 80,410 | 1,237,845 | 237,157 | 258,603 |
| Kansas | 228,074 | 7,409 | 513,314 | 250 | 1,072,560 | 6,614 | 799 | 34,189 | 1,852,371 | 250,269 | 298,662 |
| Kentucky | 1,150,036 | 23,108 | 551,354 | 519 | 1,594,516 | 22,635 | 3,841 | 8,185 | 452,395 | 441,688 | 469,555 |
| Louisiana | 401,333 | 24,581 | 708,966 | 554 | 2,541,546 | 857 | 1,761 | 26,314 | 559,071 | 625,559 | 669,847 |
| Maine | 133,369 | 11,223 | 67,068 | 124 | 506,637 | 40 | 5 | 417 | 127,174 | 141,991 | 149,051 |
| Maryland | 303,471 | 10,727 | 261,103 | 456 | 1,459,780 | 6,559 | 1,307 | 2,992 | 227,611 | 363,270 | 394,420 |
| Massachusetts | 358,065 | 14,498 | 270,770 | 666 | 2,133,002 | 2,241 | 86 | 104 | 210,504 | 515,765 | 568,190 |
| Michigan | 841,399 | 32,609 | 715,377 | 1,148 | 3,613,069 | 22,871 | 3,150 | 10,433 | 880,263 | 916,363 | 987,380 |
| Minnesota | 238,705 | 14,535 | 366,630 | 469 | 1,928,665 | 8,820 | 1,120 | 48,624 | 1,199,026 | 469,214 | 496,094 |
| Mississippi | 303,846 | 11,281 | 294,511 | 297 | 991,881 | 2,599 | 314 | 7,809 | 587,204 | 261,800 | 278,672 |
| Missouri | 1,333,218 | 22,746 | 549,797 | 849 | 2,206,090 | 22,184 | 2,681 | 17,264 | 2,877,954 | 629,726 | 673,526 |
| Montana | 169,224 | 7,583 | 140,299 | 310 | 1,422,156 | 2,003 | 243 | 3,890 | 880,654 | 236,467 | 245,600 |
| Nebraska | 78,117 | 4,078 | 173,039 | 199 | 609,510 | 4,637 | 582 | 44,683 | 1,080,992 | 168,618 | 178,920 |
| Nevada | 148,157 | 6,667 | 96,918 | 107 | 521,365 | 3,554 | 444 | 705 | 919,646 | 93,948 | 99,725 |
| New Hampshire | 108,484 | 4,867 | 58,957 | 100 | 352,582 | 1,036 | 124 | 1 | 66,310 | 103,987 | 109,401 |
| New Jersey | 309,856 | 20,690 | 417,509 | 706 | 2,294,053 | 2,566 | 328 | 80 | 402,215 | 696,758 | 749,784 |
| New Mexico | 262,555 | 9,202 | 254,116 | 174 | 932,466 | 8,299 | 977 | 4,523 | 1,249,009 | 191,042 | 213,500 |
| New York | 870,307 | 43,230 | 736,844 | 1,273 | 4,758,845 | 9,269 | 1,880 | 13,961 | 802,715 | 1,160,860 | 1,267,046 |
| North Carolina | 655,591 | 31,046 | 532,675 | 727 | 2,289,334 | 23,667 | 3,310 | 21,118 | 700,462 | 614,002 | 655,149 |
| North Dakota | 115,391 | 11,574 | 136,091 | 72 | 282,219 | 119 | 60 | 6,642 | 1,295,268 | 53,274 | 58,166 |
| Ohio | 2,681,314 | 51,554 | 1,217,607 | 2,160 | 4,697,200 | 50,783 | 7,934 | 16,124 | 1,070,910 | 1,001,059 | 1,092,677 |
| Oklahoma | 104,168 | 9,558 | 453,066 | 412 | 1,854,007 | 5,765 | 768 | 15,266 | 1,107,180 | 324,988 | 347,352 |
| Oregon | 55,987 | 18,601 | 226,767 | 334 | 1,454,001 | 729 | 92 | 4,249 | 1,849,960 | 340,267 | 363,147 |
| Pennsylvania | 1,899,006 | 60,532 | 1,041,556 | 1,916 | 4,377,701 | 42,015 | 5,525 | 24,309 | 1,432,694 | 1,043,563 | 1,113,027 |
| Rhode Island | 14,168 | 1,491 | 36,253 | 82 | 316,586 | 27 | 0 | 0 | 32,323 | 81,042 | 86,846 |
| South Carolina | 344,968 | 17,550 | 278,092 | 459 | 1,207,907 | 9,045 | 1,648 | 4,440 | 451,493 | 474,791 | 501,073 |
| South Dakota | 40,863 | 3,798 | 79,356 | 70 | 509,495 | 235 | 38 | 12,941 | 715,996 | 95,639 | 101,160 |
| Tennessee | 1,158,153 | 28,905 | 531,336 | 732 | 1,951,470 | 23,436 | 4,357 | 18,117 | 656,159 | 554,586 | 587,715 |
| Texas | 1,324,373 | 59,869 | 3,330,036 | 2,169 | 9,063,470 | 19,257 | 5,900 | 61,713 | 5,937,876 | 2,172,905 | 2,381,939 |
| Utah | 116,615 | 8,886 | 155,757 | 191 | 990,051 | 3,588 | 511 | 1,961 | 690,811 | 160,449 | 172,386 |
| Vermont | 8,185 | 1,764 | 23,780 | 62 | 202,077 | 12 | 0 | 3 | 100,889 | 58,570 | 61,481 |
| Virginia | 370,780 | 21,579 | 363,434 | 646 | 2,322,403 | 7,328 | 1,385 | 10,913 | 466,354 | 527,715 | 561,508 |
| Washington | 317,791 | 19,758 | 294,646 | 505 | 2,401,774 | 5,062 | 1,516 | 18,097 | 347,565 | 465,326 | 494,352 |
| West Virginia | 1,145,522 | 27,902 | 461,014 | 618 | 784,971 | 29,078 | 4,861 | 335 | 381,995 | 154,780 | 161,785 |
| Wisconsin | 670,610 | 23,795 | 407,774 | 592 | 1,892,865 | 15,406 | 2,328 | 32,054 | 706,684 | 476,956 | 512,284 |
| Wyoming | 211,134 | 13,388 | 248,907 | 86 | 589,965 | 13,110 | 1,727 | 5,159 | 486,720 | 102,467 | 111,091 |
| Contig. U.S. | 26,954,136 | 975,608 | 22,352,239 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 23,164,547 | 24,977,459 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

| State | METRIC TONS/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alabama | 777,969 | 29,929 | 442,035 | 618 | 1,643,024 | 17,729 | 3,211 | 10,854 | 398,501 | 355,123 | 386,090 |
| Arizona | 765,749 | 28,006 | 239,402 | 332 | 1,188,806 | 8,108 | 986 | 10,815 | 763,386 | 230,512 | 246,068 |
| Arkansas | 79,041 | 9,506 | 191,546 | 239 | 948,518 | 1,620 | 1,311 | 23,059 | 793,102 | 202,425 | 212,624 |
| California | 471,560 | 32,584 | 1,254,428 | 2,398 | 8,640,261 | 428 | 132 | 29,042 | 1,393,814 | 2,010,766 | 2,190,791 |
| Colorado | 127,133 | 8,480 | 276,492 | 686 | 2,088,509 | 8,265 | 1,076 | 22,668 | 1,029,651 | 323,817 | 349,769 |
| Connecticut | 57,756 | 7,357 | 126,779 | 346 | 1,081,662 | 445 | 0 | 1,765 | 109,067 | 257,807 | 271,330 |
| Delaware | 113,099 | 4,214 | 56,487 | 64 | 220,342 | 1,045 | 167 | 1,861 | 44,799 | 69,945 | 73,653 |
| Dist. of Colum. | 13,903 | 1,017 | 22,999 | 35 | 307,336 | 594 | 21 | 54 | 13,698 | 39,990 | 43,907 |
| Florida | 1,000,637 | 27,935 | 646,111 | 986 | 3,693,837 | 8,014 | 26,516 | 26,121 | 834,467 | 751,659 | 788,067 |
| Georgia | 816,554 | 27,837 | 535,834 | 632 | 2,119,029 | 18,555 | 2,271 | 32,077 | 800,166 | 461,178 | 481,010 |
| Idaho | 50,993 | 7,871 | 83,347 | 497 | 1,161,657 | 298 | 220 | 7,378 | 300,032 | 201,440 | 209,014 |
| Illinois | 1,328,614 | 38,347 | 882,687 | 2,390 | 3,852,635 | 31,133 | 7,200 | 62,263 | 846,136 | 896,833 | 991,413 |
| Indiana | 1,787,975 | 34,574 | 713,820 | 999 | 2,154,231 | 30,386 | 4,179 | 26,636 | 450,556 | 510,426 | 565,923 |
| Iowa | 303,258 | 9,988 | 277,378 | 387 | 1,003,044 | 10,437 | 1,548 | 72,947 | 1,122,956 | 215,146 | 234,601 |
| Kansas | 206,909 | 6,721 | 465,674 | 227 | 973,011 | 6,000 | 725 | 31,016 | 1,680,443 | 227,041 | 270,943 |
| Kentucky | 1,043,314 | 20,964 | 500,185 | 471 | 1,446,523 | 20,535 | 3,485 | 7,425 | 410,408 | 400,695 | 425,975 |
| Louisiana | 364,088 | 22,300 | 643,171 | 503 | 2,305,669 | 777 | 1,598 | 23,872 | 507,183 | 567,503 | 607,681 |
| Maine | 120,992 | 10,181 | 60,843 | 112 | 459,614 | 36 | 5 | 379 | 115,371 | 128,812 | 135,217 |
| Maryland | 275,309 | 9,731 | 236,870 | 414 | 1,324,291 | 5,950 | 1,186 | 2,715 | 206,486 | 329,554 | 357,813 |
| Massachusetts | 324,836 | 13,152 | 245,640 | 604 | 1,935,027 | 2,033 | 78 | 94 | 190,966 | 467,896 | 515,456 |
| Michigan | 763,319 | 29,583 | 648,985 | 1,041 | 3,277,726 | 20,749 | 2,858 | 9,465 | 798,564 | 831,314 | 895,740 |
| Minnesota | 216,554 | 13,186 | 332,603 | 425 | 1,749,656 | 8,002 | 1,016 | 44,111 | 1,087,740 | 425,665 | 450,050 |
| Mississippi | 275,649 | 10,234 | 267,178 | 269 | 899,821 | 2,358 | 285 | 7,084 | 532,703 | 237,502 | 252,808 |
| Missouri | 1,209,497 | 20,635 | 498,772 | 770 | 2,001,333 | 20,125 | 2,432 | 15,662 | 2,610,841 | 571,281 | 611,016 |
| Montana | 153,520 | 6,879 | 127,278 | 281 | 1,290,161 | 1,817 | 220 | 3,529 | 798,916 | 214,520 | 222,805 |
| Nebraska | 70,868 | 3,700 | 156,979 | 181 | 552,938 | 4,207 | 528 | 40,536 | 980,660 | 152,968 | 162,315 |
| Nevada | 134,408 | 6,048 | 87,923 | 97 | 472,975 | 3,224 | 403 | 640 | 834,289 | 85,228 | 90,469 |
| New Hampshire | 98,417 | 4,415 | 53,485 | 91 | 319,857 | 940 | 112 | 1 | 60,155 | 94,335 | 99,247 |
| New Jersey | 281,101 | 18,770 | 378,760 | 640 | 2,081,131 | 2,328 | 298 | 73 | 364,885 | 632,090 | 680,194 |
| New Mexico | 238,190 | 8,348 | 230,533 | 158 | 845,919 | 7,529 | 886 | 4,103 | 1,133,083 | 173,311 | 193,684 |
| New York | 789,543 | 39,218 | 668,459 | 1,155 | 4,317,154 | 8,409 | 1,706 | 12,665 | 728,215 | 1,053,116 | 1,149,447 |
| North Carolina | 594,752 | 28,165 | 483,239 | 660 | 2,076,851 | 21,471 | 3,003 | 19,158 | 635,450 | 557,015 | 594,343 |
| North Dakota | 104,683 | 10,500 | 123,461 | 65 | 256,026 | 108 | 54 | 6,025 | 1,175,048 | 48,330 | 52,767 |
| Ohio | 2,432,493 | 46,770 | 1,104,606 | 1,960 | 4,261,240 | 46,070 | 7,198 | 14,627 | 971,518 | 908,147 | 991,263 |
| Oklahoma | 94,501 | 8,671 | 411,017 | 374 | 1,681,933 | 5,230 | 697 | 13,849 | 1,004,418 | 294,825 | 315,114 |
| Oregon | 50,791 | 16,875 | 205,720 | 303 | 1,319,048 | 661 | 83 | 3,855 | 1,678,256 | 308,686 | 329,442 |
| Pennsylvania | 1,722,780 | 54,914 | 944,892 | 1,740 | 3,971,392 | 38,116 | 5,012 | 22,053 | 1,299,721 | 946,707 | 1,009,724 |
| Rhode Island | 12,853 | 1,353 | 32,888 | 74 | 287,202 | 24 | 0 | 0 | 29,323 | 73,520 | 78,786 |
| South Carolina | 312,955 | 15,921 | 252,283 | 416 | 1,095,796 | 8,206 | 1,495 | 4,028 | 409,590 | 430,726 | 454,570 |
| South Dakota | 37,071 | 3,446 | 71,991 | 64 | 462,206 | 213 | 34 | 11,740 | 649,541 | 86,762 | 91,771 |
| Tennessee | 1,050,678 | 26,223 | 482,025 | 664 | 1,770,347 | 21,261 | 3,953 | 16,435 | 595,260 | 503,114 | 533,168 |
| Texas | 1,201,469 | 54,313 | 3,020,981 | 1,968 | 8,222,279 | 17,470 | 5,352 | 55,986 | 5,386,757 | 1,971,239 | 2,160,874 |
| Utah | 105,793 | 8,061 | 141,301 | 173 | 898,160 | 3,255 | 464 | 1,779 | 626,694 | 145,557 | 156,386 |
| Vermont | 7,425 | 1,600 | 21,573 | 56 | 183,321 | 11 | 0 | 2 | 91,525 | 53,134 | 55,775 |
| Virginia | 336,371 | 19,576 | 347,848 | 586 | 2,106,855 | 6,648 | 1,256 | 9,900 | 423,071 | 478,736 | 509,394 |
| Washington | 288,300 | 17,924 | 267,300 | 458 | 2,178,857 | 4,592 | 1,375 | 16,418 | 315,307 | 422,137 | 448,470 |
| West Virginia | 1,039,220 | 25,313 | 418,231 | 561 | 712,116 | 26,380 | 4,410 | 304 | 346,541 | 140,414 | 146,769 |
| Wisconsin | 608,378 | 21,587 | 369,930 | 537 | 1,717,179 | 13,976 | 2,112 | 29,079 | 641,095 | 432,688 | 464,738 |
| Wyoming | 191,541 | 12,146 | 225,807 | 78 | 535,209 | 11,893 | 1,567 | 4,681 | 441,545 | 92,956 | 100,780 |
| Contig. U.S. | 24,452,809 | 885,069 | 20,277,779 | 28,787 | 90,091,712 | 477,664 | 104,722 | 760,828 | 38,661,904 | 21,014,593 | 22,659,252 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

| EPA REGION | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $SO_2$ | $SO_4$ | $NO_x$ | Pb | CO | HCl | HF | $NH_3$ | TSP | VOC | THC |
| REGION 1 | 685,936 | 41,953 | 596,578 | 1,415 | 4,703,212 | 3,847 | 215 | 2,470 | 657,426 | 1,185,538 | 1,274,058 |
| REGION 2 | 1,180,163 | 63,920 | 1,154,353 | 1,979 | 7,052,898 | 11,835 | 2,208 | 14,042 | 1,204,930 | 1,857,619 | 2,016,830 |
| REGION 3 | 3,858,772 | 126,506 | 2,234,725 | 3,748 | 9,526,520 | 86,787 | 13,285 | 40,660 | 2,573,135 | 2,210,510 | 2,360,328 |
| REGION 4 | 6,473,217 | 206,358 | 3,978,083 | 5,199 | 16,253,808 | 130,211 | 48,740 | 135,784 | 5,088,856 | 4,075,244 | 4,316,670 |
| REGION 5 | 7,867,419 | 202,874 | 4,467,218 | 8,105 | 18,753,223 | 165,692 | 27,076 | 205,228 | 5,286,234 | 4,414,825 | 4,805,098 |
| REGION 6 | 2,179,556 | 113,688 | 4,957,327 | 3,573 | 15,437,049 | 35,964 | 10,851 | 133,234 | 9,727,381 | 3,537,629 | 3,847,014 |
| REGION 7 | 1,973,687 | 45,243 | 1,541,904 | 1,725 | 4,993,826 | 44,940 | 5,768 | 176,547 | 7,049,162 | 1,285,770 | 1,409,712 |
| REGION 8 | 793,365 | 54,576 | 1,065,188 | 1,485 | 6,096,071 | 28,165 | 3,765 | 55,581 | 5,204,444 | 1,005,242 | 1,073,957 |
| REGION 9 | 1,512,034 | 73,455 | 1,743,576 | 3,116 | 11,356,048 | 12,963 | 1,676 | 44,639 | 3,297,549 | 2,564,528 | 2,785,895 |
| REGION 10 | 429,988 | 47,035 | 613,287 | 1,387 | 5,136,282 | 6,120 | 1,850 | 30,479 | 2,528,253 | 1,027,643 | 1,087,898 |
| Contig. U.S. | 26,954,136 | 975,608 | 22,352,239 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 23,164,547 | 24,977,459 |

| EPA REGION | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $SO_2$ | $SO_4$ | $NO_x$ | Pb | CO | HCl | HF | $NH_3$ | TSP | VOC | THC |
| REGION 1 | 622,280 | 38,059 | 541,209 | 1,284 | 4,266,684 | 3,490 | 195 | 2,241 | 596,408 | 1,075,505 | 1,155,810 |
| REGION 2 | 1,070,643 | 57,988 | 1,047,219 | 1,795 | 6,398,285 | 10,737 | 2,003 | 12,738 | 1,093,100 | 1,685,207 | 1,829,642 |
| REGION 3 | 3,500,682 | 114,766 | 2,027,327 | 3,400 | 8,642,332 | 78,733 | 12,052 | 36,886 | 2,334,316 | 2,005,346 | 2,141,260 |
| REGION 4 | 5,872,509 | 187,208 | 3,608,890 | 4,716 | 14,745,227 | 118,128 | 44,217 | 123,182 | 4,616,546 | 3,697,012 | 3,916,031 |
| REGION 5 | 7,137,332 | 184,047 | 4,052,631 | 7,353 | 17,012,667 | 150,316 | 24,563 | 186,181 | 4,795,609 | 4,005,073 | 4,359,126 |
| REGION 6 | 1,977,289 | 103,138 | 4,497,248 | 3,241 | 14,004,319 | 32,627 | 9,844 | 120,869 | 8,824,543 | 3,209,303 | 3,489,976 |
| REGION 7 | 1,790,531 | 41,044 | 1,398,804 | 1,565 | 4,530,326 | 40,770 | 5,233 | 160,161 | 6,394,901 | 1,166,436 | 1,278,875 |
| REGION 8 | 719,740 | 49,511 | 966,330 | 1,347 | 5,530,270 | 25,551 | 3,416 | 50,423 | 4,721,397 | 911,942 | 974,279 |
| REGION 9 | 1,371,718 | 66,638 | 1,581,754 | 2,827 | 10,302,041 | 11,760 | 1,520 | 40,496 | 2,991,490 | 2,326,506 | 2,527,328 |
| REGION 10 | 390,084 | 42,670 | 556,367 | 1,258 | 4,659,562 | 5,552 | 1,678 | 27,651 | 2,293,595 | 932,263 | 986,926 |
| Contig. U.S. | 24,452,809 | 885,069 | 20,277,779 | 28,787 | 90,091,712 | 477,664 | 104,722 | 760,828 | 38,661,904 | 21,014,593 | 22,659,252 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| | | | | | | TONS/YEAR | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 10101 | 3,524 | 151 | 75,089 | 0 | 1,100,692 | 0 | 0 | 0 | 6,089 | 76,543 | 82,528 |
| 10102 | 1,926 | 20 | 51,612 | 0 | 1,035,780 | 0 | 0 | 0 | 4,904 | 65,662 | 70,796 |
| 10103 | 2,130 | 49 | 51,816 | 0 | 782,189 | 0 | 0 | 0 | 3,680 | 63,894 | 68,890 |
| 10104 | 14,150 | 969 | 315,962 | 0 | 4,087,204 | 0 | 0 | 0 | 33,616 | 410,708 | 442,819 |
| 10105 | 49 | 0 | 327 | 0 | 51,875 | 0 | 0 | 0 | 272 | 14,012 | 15,108 |
| 10106 | 30 | 0 | 347 | 0 | 33,909 | 0 | 0 | 0 | 963 | 21,025 | 22,669 |
| 10201 | 28 | 0 | 46 | 0 | 460 | 0 | 0 | 0 | 21 | 53 | 54 |
| 10202 | 47 | 0 | 155 | 0 | 1,550 | 0 | 0 | 0 | 66 | 172 | 174 |
| 10203 | 562 | 0 | 5,986 | 0 | 11,978 | 0 | 0 | 0 | 330 | 7,266 | 7,378 |
| 10204 | 1,676 | 0 | 36,613 | 0 | 1,536 | 0 | 0 | 0 | 762 | 350 | 356 |
| 10206 | 47 | 0 | 294 | 0 | 68,717 | 0 | 0 | 0 | 110 | 6,187 | 6,283 |
| 10207 | 29 | 0 | 38 | 0 | 12,674 | 0 | 0 | 0 | 21 | 754 | 766 |
| 10208 | 57 | 0 | 85 | 0 | 61,680 | 0 | 0 | 0 | 113 | 9,996 | 10,150 |
| 10210 | 88 | 0 | 695 | 0 | 373 | 0 | 0 | 0 | 93 | 17 | 17 |
| 10211 | 42 | 0 | 53 | 0 | 16,498 | 0 | 0 | 0 | 29 | 651 | 661 |
| 10213 | 48 | 0 | 342 | 0 | 770 | 0 | 0 | 0 | 125 | 341 | 346 |
| 10214 | 4,664 | 201 | 117,994 | 0 | 42,910 | 0 | 0 | 0 | 8,030 | 35,115 | 35,724 |
| 10215 | 202 | 0 | 205 | 0 | 102,292 | 0 | 0 | 0 | 0 | 32,236 | 34,796 |
| 10217 | 3,780 | 0 | 4,399 | 0 | 4,045 | 0 | 0 | 0 | 1,452 | 5,659 | 5,659 |
| 10218 | 2,164 | 0 | 16,437 | 0 | 3,295 | 0 | 0 | 0 | 862 | 12,407 | 12,407 |
| 10220 | 5,576 | 0 | 1,692 | 0 | 0 | 0 | 0 | 0 | 127 | 117 | 131 |
| 10221 | 60,657 | 0 | 11,638 | 0 | 718 | 0 | 0 | 0 | 4,169 | 218 | 245 |
| 10301 | 1,357 | 0 | 29,013 | 0 | 967,453 | 0 | 0 | 0 | 1,803 | 47,632 | 51,415 |
| 10501 | 0 | 0 | 168,590 | 0 | 6,743,663 | 0 | 0 | 12,646 | 6,322,187 | 1,011,551 | 1,011,551 |
| 10601 | 0 | 0 | 20,018 | 0 | 1,145,919 | 0 | 0 | 0 | 225,073 | 21,643 | 21,643 |
| 10701 | 0 | 0 | 0 | 0 | 11,111 | 0 | 0 | 0 | 5,556 | 5,556 | 5,556 |
| 10801 | 0 | 145 | 0 | 0 | 0 | 0 | 0 | 147,983 | 7,852 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,243 | 18,243 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,245 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,820 | 0 | 0 |
| 11402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 526 | 165,936 | 169,495 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,931 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100,888 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60,835 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,025 | 250 | 250 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 9 | 9 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,483 | 119 | 119 |
| 11702 | 72 | 3 | 116 | 0 | 6 | 0 | 0 | 0 | 9 | 2 | 2 |
| 11703 | 19 | 0 | 31 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 11704 | 3,391 | 201 | 560 | 0 | 44 | 0 | 0 | 0 | 250 | 14 | 16 |
| 11705 | 1,460 | 20 | 10,072 | 0 | 3,143 | 0 | 0 | 0 | 904 | 831 | 970 |
| 11706 | 272 | 0 | 4,055 | 0 | 139 | 0 | 0 | 0 | 23 | 6 | 14 |
| 11711 | 4,266 | 82 | 265 | 0 | 7,457 | 0 | 0 | 169 | 1,477 | 1,462 | 1,493 |
| 11712 | 59,117 | 3,855 | 24,581 | 0 | 6,719 | 0 | 0 | 1,310 | 3,328 | 6,374 | 6,374 |
| 11713 | 2,793 | 301 | 2,812 | 0 | 770 | 0 | 0 | 144 | 378 | 715 | 715 |
| 11714 | 2 | 0 | 1,097 | 0 | 232 | 0 | 0 | 0 | 29 | 44 | 99 |
| 11715 | 115 | 1 | 19,235 | 0 | 6,731 | 0 | 0 | 0 | 576 | 733 | 1,660 |
| 11716 | 7,959 | 859 | 1,295 | 0 | 124 | 0 | 0 | 22 | 687 | 60 | 67 |
| 11721 | 1,098 | 19 | 195 | 0 | 668 | 0 | 0 | 0 | 904 | 631 | 645 |
| 11722 | 21,561 | 2,888 | 6,756 | 0 | 1,742 | 0 | 0 | 0 | 703 | 357 | 357 |
| 11723 | 676 | 90 | 757 | 0 | 199 | 0 | 0 | 0 | 82 | 39 | 39 |
| 11724 | 2 | 0 | 826 | 0 | 147 | 0 | 0 | 0 | 139 | 25 | 58 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 11725 | 115 | 8 | 18,798 | 0 | 6,580 | 0 | 0 | 0 | 562 | 716 | 1,623 |
| 11726 | 69,506 | 6,249 | 12,347 | 0 | 1,177 | 0 | 0 | 0 | 6,546 | 574 | 645 |
| 11731 | 72,651 | 1,166 | 11,061 | 0 | 5,556 | 0 | 0 | 0 | 28,024 | 304 | 311 |
| 11732 | 6,569 | 704 | 2,973 | 0 | 762 | 0 | 0 | 0 | 312 | 158 | 158 |
| 11733 | 172 | 17 | 220 | 0 | 55 | 0 | 0 | 0 | 23 | 8 | 8 |
| 11734 | 2 | 0 | 903 | 0 | 228 | 0 | 0 | 0 | 81 | 16 | 36 |
| 11735 | 178 | 13 | 41,865 | 0 | 10,467 | 0 | 0 | 0 | 897 | 826 | 1,871 |
| 11736 | 320,833 | 26,967 | 55,878 | 0 | 5,334 | 0 | 0 | 0 | 29,673 | 2,597 | 2,917 |
| 11740 | 2,790 | 0 | 5,734 | 0 | 428,957 | 0 | 0 | 0 | 96,093 | 3,550 | 3,626 |
| 11801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,934 | 4,382 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43,307 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,019 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 970 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,289 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 466 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,317 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 123 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 240 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,370 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,318 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,778 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,043 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,737 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,802 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,308 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17,199 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,425 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,946 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,027 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,836 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,541 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,009 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 919 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,896 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,147 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 0 | 0 |
| 12701 | 0 | 0 | 76,341 | 0 | 9,673 | 0 | 0 | 0 | 0 | 14,416 | 32,657 |
| 12702 | 0 | 0 | 2,196 | 0 | 906 | 0 | 0 | 0 | 0 | 63 | 142 |
| 12703 | 0 | 0 | 7,686 | 0 | 974 | 0 | 0 | 0 | 0 | 1,451 | 3,287 |
| 12704 | 0 | 0 | 570 | 0 | 0 | 0 | 0 | 0 | 24 | 4 | 9 |
| 12705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,880 | 4,258 |
| 12801 | 302 | 0 | 3,029 | 0 | 393,658 | 0 | 0 | 0 | 33,311 | 6,601 | 33,311 |
| 12802 | 104 | 0 | 226 | 0 | 0 | 0 | 0 | 78 | 125 | 0 | 0 |
| 12803 | 526 | 0 | 466 | 0 | 759 | 0 | 0 | 83 | 929 | 42 | 212 |
| 12901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,130 | 55,130 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

|  |  |  |  |  | TONS/YEAR |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 12902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,538 | 26,538 |
| 12903 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,317 | 3,317 |
| 12904 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,068 | 35,068 |
| 12905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,055 | 5,055 |
| 12906 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,013 | 30,013 |
| 12907 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,843 | 2,843 |
| 13001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81,760 | 81,760 |
| 13002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74,060 | 74,060 |
| 13101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,456 | 2,019,013 |
| 13201 | 0 | 0 | 0 | 0 | 1,045 | 0 | 0 | 0 | 2,749 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 4,682 | 0 | 0 | 0 | 2,945 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,276 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,120 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,294,970 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,945 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,270,672 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,866,796 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311,669 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,284,702 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 486 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,935 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 2,132 | 0 | 0 | 0 | 5,329 | 0 | 0 |
| 14101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,047 | 5,720 |
| 14102 | 36,201 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,296 | 25,271 |
| 14201 | 657 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,609 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,382 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143,020 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61,615 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,381 | 0 | 0 |
| 14401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,762 | 267 | 758 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,441 | 0 | 0 |
| 14601 | 6,144 | 565 | 66,752 | 0 | 23,746 | 0 | 0 | 0 | 9,133 | 14,424 | 14,674 |
| 14602 | 3,990 | 365 | 67,714 | 0 | 11,862 | 0 | 0 | 0 | 2,264 | 4,620 | 4,700 |
| 14603 | 24,640 | 1,322 | 126,285 | 0 | 60,210 | 0 | 0 | 0 | 11,439 | 22,901 | 23,298 |
| 14604 | 12,359 | 1,136 | 187,733 | 0 | 40,756 | 0 | 0 | 0 | 13,364 | 17,889 | 18,200 |
| 14701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,166 | 21,539 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63,786 | 0 | 0 |
| 15101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83,641 | 84,390 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157,366 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 822,512 | 0 | 0 |
| 99900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 763,375 | 48,547 | 1,670,876 | NR | 17,326,935 | NR | NR | 162,384 | 30,641,093 | 2,618,250 | 4,729,547 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 10101 | 3,197 | 137 | 68,120 | 0 | 998,531 | 0 | 0 | 0 | 5,524 | 69,439 | 74,868 |
| 10102 | 1,747 | 18 | 46,822 | 0 | 939,644 | 0 | 0 | 0 | 4,449 | 59,568 | 64,225 |
| 10103 | 1,932 | 44 | 47,007 | 0 | 709,590 | 0 | 0 | 0 | 3,338 | 57,964 | 62,496 |
| 10104 | 12,837 | 879 | 286,636 | 0 | 3,707,849 | 0 | 0 | 0 | 30,496 | 372,588 | 401,718 |
| 10105 | 44 | 0 | 297 | 0 | 47,060 | 0 | 0 | 0 | 247 | 12,712 | 13,706 |
| 10106 | 27 | 0 | 315 | 0 | 30,762 | 0 | 0 | 0 | 874 | 19,074 | 20,565 |
| 10201 | 25 | 0 | 42 | 0 | 417 | 0 | 0 | 0 | 19 | 48 | 49 |
| 10202 | 43 | 0 | 141 | 0 | 1,406 | 0 | 0 | 0 | 60 | 156 | 158 |
| 10203 | 510 | 0 | 5,430 | 0 | 10,866 | 0 | 0 | 0 | 299 | 6,592 | 6,693 |
| 10204 | 1,520 | 0 | 33,215 | 0 | 1,393 | 0 | 0 | 0 | 691 | 318 | 323 |
| 10206 | 43 | 0 | 267 | 0 | 62,339 | 0 | 0 | 0 | 100 | 5,613 | 5,699 |
| 10207 | 26 | 0 | 34 | 0 | 11,498 | 0 | 0 | 0 | 19 | 684 | 695 |
| 10208 | 52 | 0 | 77 | 0 | 55,955 | 0 | 0 | 0 | 103 | 9,069 | 9,208 |
| 10210 | 80 | 0 | 630 | 0 | 338 | 0 | 0 | 0 | 84 | 15 | 16 |
| 10211 | 38 | 0 | 48 | 0 | 14,967 | 0 | 0 | 0 | 26 | 591 | 600 |
| 10213 | 44 | 0 | 310 | 0 | 699 | 0 | 0 | 0 | 113 | 309 | 314 |
| 10214 | 4,231 | 182 | 107,042 | 0 | 38,927 | 0 | 0 | 0 | 7,285 | 31,856 | 32,408 |
| 10215 | 183 | 0 | 186 | 0 | 92,798 | 0 | 0 | 0 | 0 | 29,244 | 31,566 |
| 10217 | 3,429 | 0 | 3,991 | 0 | 3,670 | 0 | 0 | 0 | 1,317 | 5,133 | 5,133 |
| 10218 | 1,963 | 0 | 14,911 | 0 | 2,989 | 0 | 0 | 0 | 782 | 11,255 | 11,255 |
| 10220 | 5,058 | 0 | 1,535 | 0 | 0 | 0 | 0 | 0 | 115 | 106 | 119 |
| 10221 | 55,027 | 0 | 10,558 | 0 | 651 | 0 | 0 | 0 | 3,782 | 198 | 222 |
| 10301 | 1,231 | 0 | 26,320 | 0 | 877,659 | 0 | 0 | 0 | 1,636 | 43,211 | 46,643 |
| 10501 | 0 | 0 | 152,942 | 0 | 6,117,748 | 0 | 0 | 11,472 | 5,735,392 | 917,664 | 917,664 |
| 10601 | 0 | 0 | 18,160 | 0 | 1,039,560 | 0 | 0 | 0 | 204,183 | 19,634 | 19,634 |
| 10701 | 0 | 0 | 0 | 0 | 10,080 | 0 | 0 | 0 | 5,040 | 5,040 | 5,040 |
| 10801 | 0 | 132 | 0 | 0 | 0 | 0 | 0 | 134,248 | 7,123 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,550 | 16,550 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,201 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,651 | 0 | 0 |
| 11402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 477 | 150,534 | 153,763 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,288 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91,524 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,189 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,373 | 227 | 227 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 8 | 8 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,345 | 108 | 108 |
| 11702 | 65 | 3 | 105 | 0 | 5 | 0 | 0 | 0 | 8 | 2 | 2 |
| 11703 | 17 | 0 | 28 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 |
| 11704 | 3,076 | 182 | 508 | 0 | 40 | 0 | 0 | 0 | 227 | 13 | 14 |
| 11705 | 1,324 | 18 | 9,137 | 0 | 2,851 | 0 | 0 | 0 | 820 | 754 | 880 |
| 11706 | 247 | 0 | 3,679 | 0 | 126 | 0 | 0 | 0 | 21 | 6 | 13 |
| 11711 | 3,870 | 74 | 240 | 0 | 6,765 | 0 | 0 | 153 | 1,340 | 1,326 | 1,354 |
| 11712 | 53,630 | 3,497 | 22,300 | 0 | 6,095 | 0 | 0 | 1,188 | 3,019 | 5,782 | 5,782 |
| 11713 | 2,534 | 273 | 2,551 | 0 | 699 | 0 | 0 | 131 | 343 | 649 | 649 |
| 11714 | 2 | 0 | 995 | 0 | 210 | 0 | 0 | 0 | 26 | 40 | 90 |
| 11715 | 104 | 1 | 17,450 | 0 | 6,106 | 0 | 0 | 0 | 523 | 665 | 1,506 |
| 11716 | 7,220 | 779 | 1,175 | 0 | 112 | 0 | 0 | 20 | 623 | 54 | 61 |
| 11721 | 996 | 17 | 177 | 0 | 606 | 0 | 0 | 0 | 820 | 573 | 585 |
| 11722 | 19,560 | 2,620 | 6,129 | 0 | 1,580 | 0 | 0 | 0 | 638 | 324 | 324 |
| 11723 | 613 | 82 | 687 | 0 | 181 | 0 | 0 | 0 | 74 | 35 | 35 |
| 11724 | 2 | 0 | 749 | 0 | 133 | 0 | 0 | 0 | 126 | 23 | 52 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 11725 | 104 | 7 | 17,053 | 0 | 5,969 | 0 | 0 | 0 | 510 | 650 | 1,472 |
| 11726 | 63,055 | 5,669 | 11,201 | 0 | 1,068 | 0 | 0 | 0 | 5,938 | 521 | 585 |
| 11731 | 65,908 | 1,058 | 10,034 | 0 | 5,040 | 0 | 0 | 0 | 25,423 | 276 | 282 |
| 11732 | 5,959 | 639 | 2,697 | 0 | 691 | 0 | 0 | 0 | 283 | 143 | 143 |
| 11733 | 156 | 15 | 200 | 0 | 50 | 0 | 0 | 0 | 21 | 7 | 7 |
| 11734 | 2 | 0 | 819 | 0 | 207 | 0 | 0 | 0 | 73 | 14 | 33 |
| 11735 | 161 | 12 | 37,979 | 0 | 9,496 | 0 | 0 | 0 | 814 | 749 | 1,697 |
| 11736 | 291,055 | 24,464 | 50,692 | 0 | 4,839 | 0 | 0 | 0 | 26,919 | 2,356 | 2,646 |
| 11740 | 2,531 | 0 | 5,202 | 0 | 389,143 | 0 | 0 | 0 | 87,174 | 3,220 | 3,289 |
| 11801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,755 | 3,975 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39,287 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,460 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 880 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,127 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 423 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,452 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 272 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,500 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,010 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,870 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 225 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,296 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,576 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,449 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,094 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,603 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,107 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,930 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,746 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,666 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,398 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 915 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 834 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,627 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,041 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 206 | 0 | 0 |
| 12701 | 0 | 0 | 69,255 | 0 | 8,775 | 0 | 0 | 0 | 0 | 13,078 | 29,626 |
| 12702 | 0 | 0 | 1,992 | 0 | 822 | 0 | 0 | 0 | 0 | 57 | 129 |
| 12703 | 0 | 0 | 6,973 | 0 | 884 | 0 | 0 | 0 | 0 | 1,316 | 2,982 |
| 12704 | 0 | 0 | 517 | 0 | 0 | 0 | 0 | 0 | 22 | 3 | 8 |
| 12705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,705 | 3,863 |
| 12801 | 274 | 0 | 2,748 | 0 | 357,121 | 0 | 0 | 0 | 30,219 | 5,988 | 30,219 |
| 12802 | 94 | 0 | 205 | 0 | 0 | 0 | 0 | 25 | 113 | 0 | 0 |
| 12803 | 477 | 0 | 423 | 0 | 689 | 0 | 0 | 75 | 843 | 38 | 192 |
| 12901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,013 | 50,013 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| | | | | | METRIC TONS/YEAR | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| 12902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24,075 | 24,075 |
| 12903 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,009 | 3,009 |
| 12904 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,813 | 31,813 |
| 12905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,586 | 4,586 |
| 12906 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,228 | 27,228 |
| 12907 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,579 | 2,579 |
| 13001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74,171 | 74,171 |
| 13002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67,186 | 67,186 |
| 13101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,537 | 1,831,618 |
| 13201 | 0 | 0 | 0 | 0 | 948 | 0 | 0 | 0 | 2,494 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 4,247 | 0 | 0 | 0 | 2,672 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,065 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,016 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,174,777 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65,267 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,967,104 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,507,898 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 282,741 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,051,679 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 441 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,755 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 1,934 | 0 | 0 | 0 | 4,834 | 0 | 0 |
| 14101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,578 | 5,189 |
| 14102 | 32,841 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,227 | 22,925 |
| 14201 | 596 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,460 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,697 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129,746 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,896 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,974 | 0 | 0 |
| 14401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,413 | 242 | 688 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,708 | 0 | 0 |
| 14601 | 5,574 | 513 | 60,556 | 0 | 21,542 | 0 | 0 | 0 | 8,285 | 13,085 | 13,312 |
| 14602 | 3,620 | 331 | 61,429 | 0 | 10,761 | 0 | 0 | 0 | 2,054 | 4,191 | 4,264 |
| 14603 | 22,353 | 1,199 | 114,564 | 0 | 54,622 | 0 | 0 | 0 | 10,377 | 20,775 | 21,136 |
| 14604 | 11,212 | 1,031 | 170,309 | 0 | 36,973 | 0 | 0 | 0 | 12,124 | 16,229 | 16,511 |
| 14701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,202 | 19,540 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57,866 | 0 | 0 |
| 15101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75,878 | 76,557 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142,760 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 746,170 | 0 | 0 |
| 99900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 692,522 | 44,041 | 1,515,793 | NR | 15,718,731 | NR | NR | 147,312 | 27,797,132 | 2,375,236 | 4,290,573 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| Alberta | 51,910 | 1,291 | 361,792 | 0 | 3,005,269 | 0 | 0 | 53,080 | 8,767,433 | 537,586 | 741,839 |
| British Columb. | 42,554 | 3,123 | 202,509 | 0 | 2,035,935 | 0 | 0 | 6,518 | 1,932,312 | 260,165 | 502,632 |
| Manitoba | 9,944 | 531 | 99,411 | 0 | 1,599,921 | 0 | 0 | 19,455 | 3,113,425 | 225,491 | 316,540 |
| New Brunswick | 53,511 | 4,302 | 36,833 | 0 | 341,763 | 0 | 0 | 939 | 386,395 | 42,010 | 103,832 |
| Newfoundland | 40,452 | 3,217 | 33,752 | 0 | 197,060 | 0 | 0 | 123 | 192,773 | 26,981 | 76,696 |
| Nova Scotia | 41,146 | 3,230 | 47,085 | 0 | 378,427 | 0 | 0 | 1,276 | 708,372 | 63,195 | 137,842 |
| Ontario | 162,161 | 8,702 | 425,273 | 0 | 4,108,803 | 0 | 0 | 32,758 | 6,401,794 | 637,371 | 1,378,759 |
| Prince Edward | 2,782 | 214 | 5,642 | 0 | 57,909 | 0 | 0 | 832 | 41,462 | 6,492 | 17,192 |
| Quebec | 345,737 | 23,244 | 298,611 | 0 | 2,236,111 | 0 | 0 | 15,650 | 2,242,053 | 322,901 | 872,031 |
| Saskatchewan | 13,178 | 693 | 159,968 | 0 | 3,365,737 | 0 | 0 | 31,752 | 6,855,074 | 496,059 | 582,184 |
| Canada | 763,375 | 48,547 | 1,670,876 | NR | 17,326,935 | NR | NR | 162,384 | 30,641,093 | 2,618,250 | 4,729,547 |

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NOX | PB | CO | HCL | HF | NH3 | TSP | VOC | THC |
| Alberta | 47,092 | 1,171 | 328,212 | 0 | 2,726,334 | 0 | 0 | 48,153 | 7,953,682 | 487,690 | 672,985 |
| British Columb. | 38,604 | 2,833 | 183,713 | 0 | 1,846,969 | 0 | 0 | 5,913 | 1,752,964 | 236,018 | 455,980 |
| Manitoba | 9,021 | 482 | 90,184 | 0 | 1,451,424 | 0 | 0 | 17,649 | 2,824,452 | 204,562 | 287,160 |
| New Brunswick | 48,544 | 3,903 | 33,414 | 0 | 310,042 | 0 | 0 | 852 | 350,532 | 38,111 | 94,195 |
| Newfoundland | 36,697 | 2,918 | 30,619 | 0 | 178,770 | 0 | 0 | 112 | 174,881 | 24,477 | 69,577 |
| Nova Scotia | 37,327 | 2,930 | 42,715 | 0 | 343,303 | 0 | 0 | 1,158 | 642,624 | 57,329 | 125,049 |
| Ontario | 147,110 | 7,894 | 385,801 | 0 | 3,727,443 | 0 | 0 | 29,718 | 5,807,610 | 578,213 | 1,250,789 |
| Prince Edward | 2,524 | 194 | 5,118 | 0 | 52,534 | 0 | 0 | 755 | 37,614 | 5,889 | 15,596 |
| Quebec | 313,647 | 21,087 | 270,895 | 0 | 2,028,566 | 0 | 0 | 14,197 | 2,033,956 | 292,930 | 791,093 |
| Saskatchewan | 11,955 | 629 | 145,121 | 0 | 3,053,345 | 0 | 0 | 28,805 | 6,218,819 | 450,017 | 528,148 |
| Canada | 692,522 | 44,041 | 1,515,793 | NR | 15,718,731 | NR | NR | 147,312 | 27,797,132 | 2,375,236 | 4,290,573 |

NR => Not Reported

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 101002 | 447,467 | 8,485 | 136,282 | 0 | 15,061 | 0 | 0 | 0 | 116,032 | 4,498 | 4,595 |
| 101003 | 3,320 | 46 | 870 | 0 | 251 | 0 | 0 | 0 | 12,215 | 71 | 73 |
| 101004 | 145,392 | 8,077 | 23,122 | 0 | 1,709 | 0 | 0 | 0 | 11,744 | 499 | 560 |
| 101005 | 27,358 | 1,086 | 5,112 | 0 | 317 | 0 | 0 | 0 | 62 | 146 | 146 |
| 101006 | 5,991 | 0 | 12,585 | 0 | 420 | 0 | 0 | 0 | 428 | 12 | 27 |
| 102002 | 1,234 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 146,057 | 4,531 | 17,563 | 0 | 1,050 | 0 | 0 | 0 | 13,[illegible]68 | 212 | 238 |
| 102006 | 3,032 | 258 | 12,112 | 0 | 496 | 0 | 0 | 0 | 853 | 119 | 271 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 59,271 | 190 | 3,022 | 0 | 0 | 0 | 0 | 0 | 13,826 | 0 | 0 |
| 105001 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 214,533 | 33 | 54,721 | 0 | 23 | 0 | 0 | 0 | 8,483 | 2 | 2 |
| 201002 | 5 | 0 | 1,677 | 0 | 93 | 0 | 0 | 0 | 75 | 3 | 10 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,636 | 0 | 115,309 | 115,309 |
| 301005 | 1,842 | 0 | 0 | 0 | 123,494 | 0 | 0 | 0 | 17 | 66 | 66 |
| 301013 | 0 | 0 | 7,588 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 284 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 409 | 0 | 0 |
| 301018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,439 | 50,708 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 413 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,482 | 1,058 | 0 | 0 |
| 301023 | 17,520 | 862 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,042 | 9,042 |
| 301027 | 0 | 0 | 187 | 0 | 0 | 0 | 0 | 499 | 1,636 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 320 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 255 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,791 | 0 | 0 |
| 301035 | 2,920 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,795 | 5,446 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 |
| 301132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,458 | 1,484 |
| 301157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,655 | 1,685 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,470 | 2,514 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,078 | 7,078 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,504 | 8,504 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 303001 | 14,984 | 71 | 10,869 | 0 | 0 | 0 | 0 | 0 | 13,231 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,041 | 0 | 0 |
| 303003 | 10,140 | 830 | 5 | 0 | 775 | 0 | 0 | 560 | 22,145 | 672 | 1,438 |
| 303004 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 512 | 21 | 46 |
| 303005 | 1,680,647 | 31,882 | 0 | 0 | 0 | 0 | 0 | 0 | 33,957 | 0 | 0 |
| 303006 | 13,440 | 2,359 | 0 | 0 | 25,453 | 0 | 0 | 0 | 28,413 | 0 | 0 |
| 303008 | 190,845 | 528 | 0 | 0 | 27,713 | 0 | 0 | 0 | 35,954 | 0 | 0 |
| 303009 | 3,010 | 26 | 20 | 0 | 43,587 | 0 | 0 | 72 | 44,043 | 381 | 429 |
| 303010 | 33,359 | 1,195 | 0 | 0 | 0 | 0 | 0 | 0 | 3,351 | 0 | 0 |
| 303013 | 16,696 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 229 | 0 | 0 |
| 303023 | 221 | 0 | 0 | 0 | 37,547 | 0 | 0 | 0 | 167,589 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 296 | 0 | 0 |
| 303030 | 4,577 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 4,490 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36,301 | 0 | 0 |
| 303999 | 9,120 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 3,833 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 304001 | 35,491 | 267 | 0 | 0 | 148,413 | 0 | 0 | 0 | 22,499 | 1,250 | 1,975 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 |
| 304010 | 571,740 | 7,889 | 0 | 0 | 0 | 0 | 0 | 0 | 16,933 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 625 | 0 | 0 |
| 305006 | 0 | 496 | 0 | 0 | 0 | 0 | 0 | 0 | 15,325 | 0 | 0 |
| 305007 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 131 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,536 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,102 | 0 | 0 |
| 305015 | 0 | 5,594 | 0 | 0 | 0 | 0 | 0 | 0 | 8,771 | 0 | 0 |
| 305016 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 22,090 | 0 | 0 |
| 305019 | 1,288 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,896 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,059 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,734 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,177 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,254 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,491 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,743 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,841 | 0 | 0 |
| 306001 | 51,645 | 5,760 | 22,216 | 0 | 1,627 | 0 | 0 | 0 | 4,222 | 291 | 384 |
| 306002 | 35,655 | 461 | 6,449 | 0 | 191,381 | 0 | 0 | 4,021 | 9,593 | 23,221 | 36,280 |
| 306006 | 68 | 6 | 103 | 0 | 8 | 0 | 0 | 0 | 30 | 1 | 2 |
| 306008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75,374 | 79,023 |
| 306012 | 33 | 2 | 50 | 0 | 3 | 0 | 0 | 0 | 294 | 1 | 2 |
| 306014 | 704 | 3 | 55 | 0 | 58 | 0 | 0 | 6 | 919 | 46 | 104 |
| 306888 | 10,785 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 33,054 | 55,124 | 17,531 | 0 | 66,540 | 0 | 0 | 0 | 118,481 | 12,493 | 13,737 |
| 307002 | 76,491 | 1,039 | 0 | 0 | 0 | 0 | 0 | 0 | 1,385 | 0 | 0 |
| 310002 | 446,224 | 2,135 | 45,696 | 0 | 5,784 | 0 | 0 | 0 | 2 | 15,368 | 20,455 |
| 310004 | 277 | 0 | 3,569 | 0 | 7 | 0 | 0 | 0 | 112 | 62 | 87 |
| 310888 | 1,851 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,626 | 50,597 |
| 501001 | 1,201 | 0 | 1,389 | 0 | 16,477 | 0 | 0 | 188 | 1,869 | 136 | 693 |
| 501002 | 98 | 0 | 8 | 0 | 674 | 0 | 0 | 17 | 326 | 8 | 8 |
| 501005 | 7 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 2 |
| 503001 | 11,757 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 1,077 | 0 | 323 | 0 | 0 | 0 | 0 | 15 | 286 | 14 | 81 |
| 503007 | 12,552 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 4,345,263 | 139,735 | 383,136 | NR | 708,989 | NR | NR | 47,290 | 933,053 | 375,631 | 408,066 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | METRIC TONS/YEAR | | | | | | |
| 101002 | 405,943 | 7,698 | 123,635 | 0 | 13,663 | 0 | 0 | 0 | 105,264 | 4,081 | 4,169 |
| 101003 | 3,012 | 42 | 789 | 0 | 228 | 0 | 0 | 0 | 11,081 | 65 | 66 |
| 101004 | 131,900 | 7,327 | 20,976 | 0 | 1,550 | 0 | 0 | 0 | 10,654 | 452 | 508 |
| 101005 | 24,819 | 985 | 4,638 | 0 | 288 | 0 | 0 | 0 | 56 | 133 | 133 |
| 101006 | 5,435 | 0 | 11,417 | 0 | 381 | 0 | 0 | 0 | 388 | 11 | 25 |
| 102002 | 1,119 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 132,503 | 4,111 | 15,933 | 0 | 953 | 0 | 0 | 0 | 12,672 | 192 | 216 |
| 102006 | 2,751 | 234 | 10,988 | 0 | 450 | 0 | 0 | 0 | 774 | 108 | 246 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 53,771 | 172 | 2,742 | 0 | 0 | 0 | 0 | 0 | 12,543 | 0 | 0 |
| 105001 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 194,625 | 30 | 49,643 | 0 | 21 | 0 | 0 | 0 | 7,696 | 2 | 2 |
| 201002 | 5 | 0 | 1,521 | 0 | 84 | 0 | 0 | 0 | 68 | 3 | 9 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,886 | 0 | 104,608 | 104,608 |
| 301005 | 1,671 | 0 | 0 | 0 | 112,034 | 0 | 0 | 0 | 15 | 60 | 60 |
| 301013 | 0 | 0 | 6,884 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 258 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 371 | 0 | 0 |
| 301018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,759 | 46,002 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 375 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,344 | 960 | 0 | 0 |
| 301023 | 15,894 | 782 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,203 | 8,203 |
| 301027 | 0 | 0 | 170 | 0 | 0 | 0 | 0 | 453 | 1,484 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 231 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,625 | 0 | 0 |
| 301035 | 2,649 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,793 | 4,941 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 |
| 301132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,323 | 1,346 |
| 301157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,502 | 1,528 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,241 | 2,281 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,421 | 6,421 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,715 | 7,715 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 303001 | 13,594 | 64 | 9,860 | 0 | 0 | 0 | 0 | 0 | 12,003 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,666 | 0 | 0 |
| 303003 | 9,199 | 753 | 5 | 0 | 703 | 0 | 0 | 508 | 20,090 | 609 | 1,305 |
| 303004 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 464 | 19 | 42 |
| 303005 | 1,524,687 | 28,923 | 0 | 0 | 0 | 0 | 0 | 0 | 30,806 | 0 | 0 |
| 303006 | 12,193 | 2,140 | 0 | 0 | 23,091 | 0 | 0 | 0 | 25,776 | 0 | 0 |
| 303008 | 173,135 | 479 | 0 | 0 | 25,141 | 0 | 0 | 0 | 32,618 | 0 | 0 |
| 303009 | 2,731 | 24 | 18 | 0 | 39,542 | 0 | 0 | 65 | 39,956 | 346 | 389 |
| 303010 | 30,263 | 1,084 | 0 | 0 | 0 | 0 | 0 | 0 | 3,040 | 0 | 0 |
| 303013 | 15,147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 0 | 0 |
| 303023 | 200 | 0 | 0 | 0 | 34,063 | 0 | 0 | 0 | 152,037 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 269 | 0 | 0 |
| 303030 | 4,152 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 4,073 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32,932 | 0 | 0 |
| 303999 | 8,274 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 3,477 | 0 | 0 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| 304001 | 32,198 | 242 | 0 | 0 | 134,641 | 0 | 0 | 0 | 20,411 | 1,134 | 1,791 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 |
| 304010 | 518,684 | 7,157 | 0 | 0 | 0 | 0 | 0 | 0 | 15,362 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 567 | 0 | 0 |
| 305006 | 0 | 450 | 0 | 0 | 0 | 0 | 0 | 0 | 13,903 | 0 | 0 |
| 305007 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,022 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,000 | 0 | 0 |
| 305015 | 0 | 5,075 | 0 | 0 | 0 | 0 | 0 | 0 | 7,957 | 0 | 0 |
| 305016 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 20,040 | 0 | 0 |
| 305019 | 1,168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,421 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 961 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,924 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,676 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,138 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41,270 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,282 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,835 | 0 | 0 |
| 306001 | 46,852 | 5,225 | 20,154 | 0 | 1,476 | 0 | 0 | 0 | 3,830 | 264 | 348 |
| 306002 | 32,346 | 418 | 5,851 | 0 | 173,621 | 0 | 0 | 3,648 | 8,703 | 21,067 | 32,913 |
| 306006 | 62 | 5 | 93 | 0 | 7 | 0 | 0 | 0 | 27 | 1 | 2 |
| 306008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68,380 | 71,690 |
| 306012 | 30 | 2 | 45 | 0 | 3 | 0 | 0 | 0 | 267 | 1 | 2 |
| 306014 | 639 | 3 | 50 | 0 | 53 | 0 | 0 | 5 | 834 | 42 | 95 |
| 306888 | 9,784 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 29,987 | 50,009 | 15,904 | 0 | 60,365 | 0 | 0 | 0 | 107,486 | 11,334 | 12,462 |
| 307002 | 69,393 | 943 | 0 | 0 | 0 | 0 | 0 | 0 | 1,256 | 0 | 0 |
| 310002 | 404,815 | 1,937 | 41,456 | 0 | 5,247 | 0 | 0 | 0 | 2 | 13,942 | 18,557 |
| 310004 | 251 | 0 | 3,238 | 0 | 6 | 0 | 0 | 0 | 102 | 56 | 79 |
| 310888 | 1,679 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40,485 | 45,902 |
| 501001 | 1,090 | 0 | 1,260 | 0 | 14,948 | 0 | 0 | 171 | 1,696 | 123 | 629 |
| 501002 | 89 | 0 | 7 | 0 | 611 | 0 | 0 | 15 | 296 | 7 | 7 |
| 501005 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 2 |
| 503001 | 10,666 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 977 | 0 | 293 | 0 | 0 | 0 | 0 | 14 | 259 | 12 | 73 |
| 503007 | 11,387 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 3,942,032 | 126,768 | 347,582 | NR | 643,196 | NR | NR | 42,902 | 846,468 | 340,774 | 370,199 |

## 1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alberta | 608,878 | 6,386 | 123,772 | 0 | 18,417 | 0 | 0 | 30,243 | 60,708 | 148,126 | 157,123 |
| British Columbia | 141,552 | 31,792 | 19,286 | 0 | 167,979 | 0 | 0 | 494 | 93,322 | 24,884 | 28,148 |
| Manitoba | 523,255 | 13,259 | 2,981 | 0 | 3,589 | 0 | 0 | 1,556 | 28,794 | 8,190 | 8,551 |
| New Brunswick | 169,542 | 10,661 | 21,927 | 0 | 6,202 | 0 | 0 | 85 | 29,354 | 9,001 | 10,177 |
| Newfoundland | 25,183 | 1,387 | 2,178 | 0 | 263 | 0 | 0 | 0 | 87,892 | 1,967 | 2,196 |
| Nova Scotia | 171,197 | 7,864 | 36,391 | 0 | 15,358 | 0 | 0 | 369 | 54,647 | 10,470 | 12,102 |
| Ontario | 1,791,964 | 37,245 | 138,476 | 0 | 315,383 | 0 | 0 | 13,501 | 202,588 | 95,879 | 103,998 |
| Prince Edward Island | 2,191 | 129 | 488 | 0 | 38 | 0 | 0 | 0 | 167 | 9 | 10 |
| Quebec | 864,554 | 27,455 | 23,388 | 0 | 173,600 | 0 | 0 | 915 | 249,893 | 67,207 | 74,462 |
| Saskatchewan | 46,947 | 3,557 | 14,249 | 0 | 8,160 | 0 | 0 | 127 | 125,688 | 9,898 | 11,299 |
| Canada | 4,345,263 | 139,735 | 383,136 | NR | 708,989 | NR | NR | 47,290 | 933,053 | 375,631 | 408,066 |

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Alberta | 552,375 | 5,793 | 112,286 | 0 | 16,708 | 0 | 0 | 27,437 | 55,074 | 134,380 | 142,542 |
| British Columbia | 128,416 | 28,842 | 17,496 | 0 | 152,391 | 0 | 0 | 448 | 84,662 | 22,575 | 25,536 |
| Manitoba | 474,698 | 12,029 | 2,704 | 0 | 3,256 | 0 | 0 | 1,412 | 26,122 | 7,430 | 7,757 |
| New Brunswick | 153,809 | 9,672 | 19,892 | 0 | 5,626 | 0 | 0 | 77 | 26,630 | 8,165 | 9,232 |
| Newfoundland | 22,846 | 1,258 | 1,976 | 0 | 239 | 0 | 0 | 0 | 79,736 | 1,784 | 1,992 |
| Nova Scotia | 155,310 | 7,134 | 33,014 | 0 | 13,933 | 0 | 0 | 335 | 49,576 | 9,498 | 10,979 |
| Ontario | 1,625,674 | 33,789 | 125,426 | 0 | 286,116 | 0 | 0 | 12,248 | 183,788 | 86,982 | 94,347 |
| Prince Edward Island | 1,988 | 117 | 443 | 0 | 34 | 0 | 0 | 0 | 152 | 8 | 9 |
| Quebec | 784,325 | 24,907 | 21,218 | 0 | 157,490 | 0 | 0 | 830 | 226,703 | 60,971 | 67,552 |
| Saskatchewan | 42,590 | 3,227 | 12,927 | 0 | 7,403 | 0 | 0 | 115 | 114,024 | 8,979 | 10,250 |
| Canada | 3,942,032 | 126,768 | 347,582 | NR | 643,196 | NR | NR | 42,902 | 846,468 | 340,773 | 370,199 |

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA & POINT SOURCES

TONS/YEAR

| Province | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alberta | 660,788 | 7,677 | 485,564 | 0 | 3,023,686 | 0 | 0 | 83,323 | 8,828,141 | 685,711 | 898,962 |
| British Columbia | 184,106 | 34,915 | 221,795 | 0 | 2,203,914 | 0 | 0 | 7,012 | 2,025,634 | 285,050 | 530,780 |
| Manitoba | 533,199 | 13,790 | 102,392 | 0 | 1,603,510 | 0 | 0 | 21,011 | 3,142,219 | 233,681 | 325,091 |
| New Brunswick | 223,053 | 14,963 | 58,760 | 0 | 347,965 | 0 | 0 | 1,024 | 415,749 | 51,010 | 114,009 |
| Newfoundland | 65,635 | 4,604 | 35,930 | 0 | 197,323 | 0 | 0 | 123 | 280,665 | 28,948 | 78,892 |
| Nova Scotia | 212,343 | 11,094 | 83,476 | 0 | 393,785 | 0 | 0 | 1,646 | 763,019 | 73,664 | 149,945 |
| Ontario | 1,954,125 | 45,947 | 563,749 | 0 | 4,424,186 | 0 | 0 | 46,260 | 6,604,382 | 733,251 | 1,482,757 |
| Prince Edward Island | 4,973 | 343 | 6,130 | 0 | 57,947 | 0 | 0 | 832 | 41,629 | 6,501 | 17,202 |
| Quebec | 1,210,291 | 50,699 | 321,999 | 0 | 2,409,711 | 0 | 0 | 16,564 | 2,491,946 | 390,108 | 946,493 |
| Saskatchewan | 60,125 | 4,250 | 174,217 | 0 | 3,373,897 | 0 | 0 | 31,879 | 6,980,762 | 505,957 | 593,482 |
| Canada | 5,108,638 | 188,282 | 2,054,012 | NR | 18,035,924 | NR | NR | 209,674 | 31,574,146 | 2,993,881 | 5,137,613 |

METRIC TONS/YEAR

| Province | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alberta | 599,467 | 6,965 | 440,498 | 0 | 2,743,042 | 0 | 0 | 75,590 | 8,008,756 | 622,070 | 815,527 |
| British Columbia | 167,021 | 31,675 | 201,209 | 0 | 1,999,360 | 0 | 0 | 6,361 | 1,837,626 | 258,593 | 481,516 |
| Manitoba | 483,719 | 12,510 | 92,889 | 0 | 1,454,680 | 0 | 0 | 19,061 | 2,850,574 | 211,992 | 294,917 |
| New Brunswick | 202,353 | 13,574 | 53,307 | 0 | 315,669 | 0 | 0 | 929 | 377,162 | 46,276 | 103,427 |
| Newfoundland | 59,544 | 4,177 | 32,595 | 0 | 179,008 | 0 | 0 | 112 | 254,617 | 26,261 | 71,570 |
| Nova Scotia | 192,637 | 10,064 | 75,729 | 0 | 357,236 | 0 | 0 | 1,493 | 692,200 | 66,827 | 136,028 |
| Ontario | 1,772,784 | 41,683 | 511,427 | 0 | 4,013,560 | 0 | 0 | 41,966 | 5,991,398 | 665,195 | 1,345,137 |
| Prince Edward Island | 4,511 | 311 | 5,561 | 0 | 52,569 | 0 | 0 | 755 | 37,765 | 5,898 | 15,605 |
| Quebec | 1,097,973 | 45,994 | 292,113 | 0 | 2,186,056 | 0 | 0 | 15,027 | 2,260,660 | 353,901 | 858,645 |
| Saskatchewan | 54,545 | 3,856 | 158,047 | 0 | 3,060,748 | 0 | 0 | 28,920 | 6,332,843 | 458,996 | 538,398 |
| Canada | 4,634,554 | 170,809 | 1,863,375 | NR | 16,361,928 | NR | NR | 190,214 | 28,643,600 | 2,716,010 | 4,660,771 |

NR = NOT REPORTED

1980 NAPAP 5.0 EMISSIONS INVENTORY - ANNUAL CANADIAN & U.S. EMISSIONS, AREA & POINT SOURCES

| | TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Canada | 5,108,638 | 188,282 | 2,054,012 | NR | 18,035,924 | NR | NR | 209,674 | 31,574,146 | 2,993,881 | 5,137,613 |
| Contig. U.S. | 26,954,136 | 975,608 | 22,352,239 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 23,164,547 | 24,977,459 |
| Total | 32,062,774 | 1,163,890 | 24,406,251 | 31,732 | 117,344,861 | 526,524 | 115,434 | 1,048,338 | 74,191,516 | 26,158,428 | 30,115,073 |

| | METRIC TONS/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | SO2 | SO4 | NOx | Pb | CO | HCl | HF | NH3 | TSP | VOC | THC |
| Canada | 4,634,554 | 170,809 | 1,863,375 | NR | 16,361,928 | NR | NR | 190,214 | 28,643,600 | 2,716,010 | 4,660,771 |
| Contig. U.S. | 24,452,809 | 885,069 | 20,277,779 | 28,787 | 90,091,712 | 477,664 | 104,722 | 760,828 | 38,661,904 | 21,014,593 | 22,659,252 |
| Total | 29,087,363 | 1,055,878 | 22,141,154 | 28,787 | 106,453,640 | 477,664 | 104,722 | 951,042 | 67,305,504 | 23,730,603 | 27,320,023 |

NR = NOT REPORTED

## STATE EMISSION DENSITY - NAPAP EMISSIONS INVENTORY VERSION 5.0

State Emission Density
(Tons/Sq. Mi.)

| State | SO2 | SO4 | NOx | Pb | CO |
|---|---|---|---|---|---|
| Alabama | 16.892 | 0.6499 | 9.598 | 0.013414 | 35.68 |
| Arizona | 7.436 | 0.2720 | 2.325 | 0.003224 | 11.54 |
| Arkansas | 1.638 | 0.1970 | 3.970 | 0.004964 | 19.66 |
| California | 3.326 | 0.2298 | 8.847 | 0.016910 | 60.94 |
| Colorado | 1.353 | 0.0902 | 2.942 | 0.007297 | 22.22 |
| Connecticut | 13.067 | 1.6646 | 28.684 | 0.078202 | 244.73 |
| Delaware | 64.495 | 2.4030 | 32.212 | 0.036730 | 125.65 |
| Dist. of Colum. | 243.254 | 17.7937 | 402.413 | 0.619048 | 5,377.46 |
| Florida | 20.367 | 0.5686 | 13.151 | 0.020071 | 75.18 |
| Georgia | 15.503 | 0.5285 | 10.173 | 0.012005 | 40.23 |
| Idaho | 0.682 | 0.1053 | 1.115 | 0.006649 | 15.54 |
| Illinois | 26.319 | 0.7596 | 17.485 | 0.047353 | 76.32 |
| Indiana | 54.844 | 1.0605 | 21.896 | 0.030638 | 66.08 |
| Iowa | 5.973 | 0.1967 | 5.463 | 0.007630 | 19.76 |
| Kansas | 2.789 | 0.0906 | 6.277 | 0.003057 | 13.11 |
| Kentucky | 28.987 | 0.5824 | 13.897 | 0.013082 | 40.19 |
| Louisiana | 9.015 | 0.5521 | 15.925 | 0.012444 | 57.09 |
| Maine | 4.303 | 0.3621 | 2.164 | 0.004001 | 16.35 |
| Maryland | 30.847 | 1.0904 | 26.540 | 0.046351 | 148.38 |
| Massachusetts | 45.753 | 1.8525 | 34.599 | 0.085101 | 272.55 |
| Michigan | 14.772 | 0.5725 | 12.560 | 0.020155 | 63.43 |
| Minnesota | 3.001 | 0.1827 | 4.609 | 0.005896 | 24.25 |
| Mississippi | 6.433 | 0.2388 | 6.235 | 0.006288 | 21.00 |
| Missouri | 19.337 | 0.3299 | 7.974 | 0.012314 | 32.00 |
| Montana | 1.164 | 0.0522 | 0.965 | 0.002132 | 9.78 |
| Nebraska | 1.019 | 0.0532 | 2.258 | 0.002597 | 7.95 |
| Nevada | 1.348 | 0.0607 | 0.882 | 0.000974 | 4.74 |
| New Hampshire | 12.065 | 0.5413 | 6.557 | 0.011121 | 39.21 |
| New Jersey | 41.491 | 2.7705 | 55.906 | 0.094537 | 307.18 |
| New Mexico | 2.164 | 0.0758 | 2.094 | 0.001434 | 7.68 |
| New York | 18.369 | 0.9124 | 15.552 | 0.026868 | 100.44 |
| North Carolina | 13.422 | 0.6356 | 10.906 | 0.014884 | 46.87 |
| North Dakota | 1.665 | 0.1670 | 1.964 | 0.001039 | 4.07 |
| Ohio | 65.392 | 1.2573 | 29.695 | 0.052678 | 114.55 |
| Oklahoma | 1.517 | 0.1392 | 6.599 | 0.006001 | 27.00 |
| Oregon | 0.582 | 0.1934 | 2.358 | 0.003472 | 15.12 |
| Pennsylvania | 42.302 | 1.3484 | 23.201 | 0.042725 | 97.52 |
| Rhode Island | 13.442 | 1.4146 | 34.396 | 0.077799 | 300.37 |
| South Carolina | 11.420 | 0.5810 | 9.206 | 0.015195 | 39.99 |
| South Dakota | 0.538 | 0.0500 | 1.045 | 0.000922 | 6.71 |
| Tennessee | 28.142 | 0.7024 | 12.911 | 0.017787 | 47.42 |
| Texas | 5.055 | 0.2285 | 12.709 | 0.008278 | 34.59 |
| Utah | 1.421 | 0.1083 | 1.898 | 0.002327 | 12.28 |
| Vermont | 0.883 | 0.1902 | 2.564 | 0.006686 | 21.79 |
| Virginia | 9.340 | 0.5436 | 9.658 | 0.016272 | 58.52 |
| Washington | 4.778 | 0.2971 | 4.430 | 0.007593 | 36.11 |
| West Virginia | 47.485 | 1.1566 | 19.110 | 0.025618 | 32.54 |
| Wisconsin | 12.322 | 0.4372 | 7.493 | 0.010878 | 34.78 |
| Wyoming | 2.177 | 0.1380 | 2.566 | 0.000887 | 6.28 |

## STATE EMISSION DENSITY - NAPAP EMISSIONS INVENTORY VERSION 5.0 (continued)

State Emission Density
(Tons/Sq. Mi.)

| State | HCl | HF | NH3 | TSP | VOC | THC |
|---|---|---|---|---|---|---|
| Alabama | 0.3849 | 0.069712 | 0.23567 | 8.653 | 7.711 | 8.383 |
| Arizona | 0.0787 | 0.009576 | 0.10502 | 7.413 | 2.239 | 2.390 |
| Arkansas | 0.0336 | 0.027168 | 0.47790 | 16.437 | 4.195 | 4.407 |
| California | 0.0030 | 0.000928 | 0.20482 | 9.830 | 14.181 | 15.451 |
| Colorado | 0.0879 | 0.011448 | 0.24120 | 10.956 | 3.445 | 3.722 |
| Connecticut | 0.1008 | 0.000000 | 0.39936 | 24.677 | 58.330 | 61.389 |
| Delaware | 0.5960 | 0.095189 | 1.06118 | 25.547 | 39.887 | 42.001 |
| Dist. of Colum. | 10.3968 | 0.365079 | 0.93679 | 239.667 | 699.703 | 768.247 |
| Florida | 0.1631 | 0.539690 | 0.53165 | 16.985 | 15.299 | 16.040 |
| Georgia | 0.3523 | 0.043111 | 0.60900 | 15.192 | 8.756 | 9.132 |
| Idaho | 0.0040 | 0.002936 | 0.09869 | 4.013 | 2.694 | 2.796 |
| Illinois | 0.6167 | 0.142634 | 1.23339 | 16.761 | 17.766 | 19.639 |
| Indiana | 0.9320 | 0.128200 | 0.81703 | 13.820 | 15.657 | 17.359 |
| Iowa | 0.2056 | 0.030483 | 1.43679 | 22.118 | 4.238 | 4.621 |
| Kansas | 0.0809 | 0.009770 | 0.41805 | 22.650 | 3.060 | 3.652 |
| Kentucky | 0.5705 | 0.096814 | 0.20630 | 11.403 | 11.133 | 11.835 |
| Louisiana | 0.0192 | 0.039555 | 0.59106 | 12.558 | 14.051 | 15.046 |
| Maine | 0.0013 | 0.000161 | 0.01347 | 4.103 | 4.581 | 4.809 |
| Maryland | 0.6667 | 0.132852 | 0.30418 | 23.136 | 36.925 | 40.092 |
| Massachusetts | 0.2864 | 0.010989 | 0.01323 | 26.898 | 65.904 | 72.603 |
| Michigan | 0.4015 | 0.055303 | 0.18317 | 15.454 | 16.088 | 17.335 |
| Minnesota | 0.1109 | 0.014080 | 0.61125 | 15.073 | 5.898 | 6.236 |
| Mississippi | 0.0550 | 0.006648 | 0.16533 | 12.432 | 5.543 | 5.900 |
| Missouri | 0.3218 | 0.038886 | 0.25041 | 41.743 | 9.134 | 9.769 |
| Montana | 0.0138 | 0.001671 | 0.02676 | 6.057 | 1.626 | 1.689 |
| Nebraska | 0.0605 | 0.007594 | 0.58303 | 14.105 | 2.200 | 2.335 |
| Nevada | 0.0323 | 0.004040 | 0.00641 | 8.368 | 0.855 | 0.907 |
| New Hampshire | 0.1152 | 0.013790 | 0.00014 | 7.374 | 11.564 | 12.166 |
| New Jersey | 0.3436 | 0.043921 | 0.01075 | 53.858 | 93.299 | 100.400 |
| New Mexico | 0.0684 | 0.008052 | 0.03728 | 10.294 | 1.574 | 1.760 |
| New York | 0.1956 | 0.039680 | 0.29467 | 16.942 | 24.502 | 26.743 |
| North Carolina | 0.4846 | 0.067768 | 0.43237 | 14.341 | 12.571 | 13.413 |
| North Dakota | 0.0017 | 0.000866 | 0.09584 | 18.691 | 0.769 | 0.839 |
| Ohio | 1.2385 | 0.193493 | 0.39323 | 26.117 | 24.414 | 26.648 |
| Oklahoma | 0.0840 | 0.011186 | 0.22236 | 16.126 | 4.734 | 5.059 |
| Oregon | 0.0076 | 0.000956 | 0.04418 | 19.233 | 3.538 | 3.775 |
| Pennsylvania | 0.9359 | 0.123073 | 0.54151 | 31.914 | 23.246 | 24.793 |
| Rhode Island | 0.0256 | 0.000000 | .00000 | 30.667 | 76.890 | 82.397 |
| South Carolina | 0.2994 | 0.054557 | 0.14697 | 14.947 | 15.718 | 16.588 |
| South Dakota | 0.0031 | 0.000500 | 0.17038 | 9.426 | 1.259 | 1.332 |
| Tennessee | 0.5695 | 0.105871 | 0.44022 | 15.944 | 13.476 | 14.281 |
| Texas | 0.0735 | 0.022518 | 0.23553 | 22.662 | 8.293 | 9.091 |
| Utah | 0.0437 | 0.006226 | 0.02390 | 8.417 | 1.955 | 2.100 |
| Vermont | 0.0013 | 0.000000 | 0.00027 | 10.880 | 6.316 | 6.630 |
| Virginia | 0.1846 | 0.034887 | 0.27488 | 11.747 | 13.293 | 14.144 |
| Washington | 0.0761 | 0.022793 | 0.27209 | 5.226 | 6.996 | 7.433 |
| West Virginia | 1.2054 | 0.201501 | 0.01389 | 15.835 | 6.416 | 6.706 |
| Wisconsin | 0.2831 | 0.042775 | 0.58897 | 12.985 | 8.764 | 9.413 |
| Wyoming | 0.1352 | 0.017806 | 0.05320 | 5.018 | 1.056 | 1.145 |

1980 NAPAP 5.2 EMISSIONS INVENTORY, ANNUAL U.S. EMISSIONS, AREA SOURCES

| SCC | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 1 | 12,097 | 169 | 1,241 | 38 | 0 | 39,900 | 119 | 1 | 0 | 4,406 | 0 | 0 | 0 | 0 | 7,796 | 7,963 |
| 2 | 28,664 | 1,322 | 1,466 | 45 | 0 | 47,697 | 21 | 1 | 0 | 7,906 | 0 | 0 | 0 | 0 | 9,306 | 9,506 |
| 3 | 148,356 | 28,388 | 88,900 | 1,814 | 0 | 25,119 | 0 | 0 | 0 | 12,499 | 0 | 0 | 0 | 0 | 23,461 | 23,461 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 1,271 | 0 | 244,383 | 12,862 | 0 | 51,412 | 0 | 0 | 0 | 7,529 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 9,866 | 98,827 | 80,057 | 2,476 | 0 | 6,363,435 | 0 | 0 | 0 | 1,032,150 | 0 | 0 | 0 | 0 | 9,815 | 22,234 |
| 7 | 13,301 | 161 | 5,368 | 166 | 0 | 232 | 108 | 2 | 0 | 439 | 0 | 0 | 0 | 0 | 2,038,388 | 2,082,113 |
| 8 | 44,138 | 1,700 | 7,865 | 243 | 0 | 4,801 | 59 | 2 | 0 | 279 | 0 | 0 | 0 | 0 | 24 | 25 |
| 9 | 53,199 | 9,270 | 32,662 | 667 | 0 | 8,217 | 0 | 0 | 0 | 3,123 | 0 | 0 | 0 | 0 | 56 | 57 |
| 10 | 278,844 | 25,790 | 64,502 | 1,316 | 0 | 5,901 | 0 | 0 | 0 | 22,421 | 0 | 0 | 0 | 0 | 1,316 | 1,316 |
| 11 | 417 | 0 | 93,510 | 4,922 | 0 | 19,615 | 0 | 0 | 0 | 2,681 | 0 | 0 | 0 | 0 | 2,797 | 3,141 |
| 12 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 3,676 | 8,327 |
| 13 | 155 | 1 | 61 | 2 | 0 | 1 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 14 | 454,236 | 16,227 | 116,060 | 3,589 | 0 | 15,332 | 1,065 | 283 | 0 | 4,490 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 189 | 1 | 48 | 1 | 0 | 21 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 495 | 506 |
| 16 | 37,407 | 5,631 | 32,136 | 656 | 0 | 7,721 | 0 | 0 | 0 | 2,828 | 0 | 0 | 0 | 0 | 1 | 1 |
| 17 | 140,186 | 2,877 | 29,615 | 604 | 0 | 2,715 | 0 | 0 | 0 | 10,527 | 0 | 0 | 0 | 0 | 126 | 126 |
| 18 | 25 | 0 | 1,844,135 | 97,060 | 0 | 259,534 | 0 | 0 | 0 | 155 | 0 | 0 | 0 | 0 | 952 | 1,069 |
| 19 | 7 | 284 | 102 | 3 | 0 | 311 | 0 | 0 | 0 | 135 | 0 | 0 | 0 | 0 | 3,962 | 8,975 |
| 20 | 77 | 0 | 82 | 4 | 0 | 3 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 121 | 124 |
| 21 | 1,494 | 1 | 2,796 | 493 | 70 | 935,430 | 1,494 | 0 | 0 | 110,851 | 0 | 0 | 0 | 0 | 1 | 1 |
| 22 | 1,284 | 1 | 1,091 | 193 | 0 | 9,814 | 5 | 0 | 0 | 7,259 | 0 | 0 | 0 | 0 | 61,784 | 311,790 |
| 23 | 6,496 | 16 | 8,536 | 1,506 | 2 | 29,182 | 94 | 0 | 0 | 21,129 | 0 | 0 | 0 | 0 | 1,742 | 8,792 |
| 24 | 9,005 | 3 | 52,825 | 9,322 | 0 | 1,038,173 | 0 | 0 | 0 | 242,709 | 0 | 0 | 0 | 0 | 8,288 | 41,823 |
| 25 | 144 | 0 | 1,316 | 232 | 0 | 29,182 | 0 | 0 | 0 | 4,857 | 0 | 0 | 0 | 0 | 339,286 | 339,286 |
| 26 | 11 | 0 | 160 | 28 | 0 | 3,455 | 0 | 0 | 0 | 727 | 0 | 0 | 0 | 0 | 9,092 | 9,092 |
| 28 | 67,096 | 3,591 | 1,495,874 | 166,208 | 7,417 | 9,703,579 | 0 | 0 | 0 | 696,177 | 0 | 0 | 0 | 0 | 1,396 | 1,396 |
| 30 | 86,875 | 4,621 | 1,858,442 | 206,494 | 7,404 | 35,437,309 | 0 | 0 | 0 | 3,325,305 | 0 | 0 | 0 | 0 | 1,830,921 | 1,974,069 |
| 32 | 23,236 | 414 | 451,013 | 50,113 | 2,877 | 3,027,549 | 0 | 0 | 0 | 175,227 | 0 | 0 | 0 | 0 | 4,094,727 | 4,414,869 |
| 34 | 30,059 | 856 | 573,897 | 63,766 | 2,721 | 11,205,758 | 0 | 0 | 0 | 831,481 | 0 | 0 | 0 | 0 | 640,766 | 690,863 |
| 36 | 7,093 | 1 | 174,178 | 19,353 | 1,998 | 2,212,888 | 0 | 0 | 0 | 43,832 | 0 | 0 | 0 | 0 | 1,441,277 | 1,553,962 |
| 38 | 8,402 | 46 | 187,567 | 20,841 | 1,247 | 5,492,472 | 0 | 0 | 0 | 137,676 | 0 | 0 | 0 | 0 | 234,862 | 253,225 |
| 39 | 3,326 | 76 | 68,468 | 7,608 | 2 | 2,476,699 | 0 | 0 | 0 | 6,865 | 0 | 0 | 0 | 0 | 489,780 | 528,073 |
| 41 | 86,416 | 1,534 | 690,971 | 76,775 | 0 | 245,728 | 0 | 0 | 0 | 133,644 | 0 | 0 | 0 | 0 | 198,921 | 214,720 |
| 43 | 119,651 | 2,409 | 1,042,877 | 115,875 | 0 | 719,910 | 0 | 0 | 0 | 338,923 | 0 | 0 | 0 | 0 | 112,041 | 113,984 |
| 44 | 74,790 | 1,100 | 816,652 | 90,739 | 0 | 270,807 | 0 | 0 | 0 | 94,886 | 0 | 0 | 0 | 0 | 305,115 | 310,406 |
| 45 | 128,494 | 2,270 | 750,431 | 83,381 | 0 | 293,012 | 0 | 0 | 0 | 56,532 | 0 | 0 | 0 | 0 | 147,354 | 154,748 |
| 46 | 4,098 | 6 | 30,780 | 952 | 0 | 151,354 | 0 | 0 | 0 | 61,689 | 0 | 0 | 0 | 0 | 240,871 | 245,048 |
| 47 | 806 | 0 | 8,016 | 248 | 0 | 536,351 | 0 | 0 | 0 | 1,541 | 0 | 0 | 0 | 0 | 89,446 | 90,823 |
| 48 | 7,573 | 20 | 74,278 | 2,297 | 0 | 220,313 | 0 | 0 | 0 | 3,289 | 0 | 0 | 0 | 0 | 30,980 | 31,457 |
| 49 | 3,648 | 155 | 172 | 5 | 0 | 5,295 | 0 | 0 | 0 | 3,531 | 0 | 0 | 0 | 0 | 89,097 | 90,468 |
| 50 | 12,343 | 946 | 90,332 | 1,844 | 0 | 32,258 | 0 | 0 | 0 | 9,862 | 0 | 0 | 0 | 0 | 577 | 589 |
| 51 | 212,163 | 16,972 | 34,164 | 697 | 0 | 1,166 | 0 | 0 | 0 | 16,094 | 0 | 0 | 0 | 0 | 28,235 | 28,235 |
| 52 | 2,725 | 0 | 10,137 | 534 | 0 | 1,360,524 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,439 | 2,739 |
| 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 370,657 | 400,096 |
| 55 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 29,270,073 | 0 | 0 | 0 | 0 | 966,415 | 966,415 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,528 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 5,013 | 6 | 118,528 | 20,917 | 0 | 4,881,714 | 0 | 0 | 0 | 592,770 | 0 | 0 | 0 | 0 | 836,862 | 836,862 |
| 61 | 3,007 | 4 | 69,686 | 12,297 | 0 | 2,295,361 | 0 | 0 | 0 | 409,913 | 0 | 0 | 0 | 0 | 368,884 | 368,884 |

1980 NAPAP 5.2 EMISSIONS INVENTORY, ANNUAL U.S. EMISSIONS, AREA SOURCES

| SCC | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 62 | 0 | 0 | 7,179 | 1,267 | 0 | 397,513 | 0 | 0 | 0 | 60,465 | 0 | 0 | 0 | 0 | 68,041 | 68,041 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 64 | 0 | 5,606 | 989 | 0 | 230,339 | 0 | 0 | 0 | 56,693 | 0 | 0 | 0 | 0 | 42,334 | 42,334 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97,193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129,780 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97,606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,793 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,163 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,355 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 148,502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 506,129 | 506,129 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300,118 | 300,118 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 175,812 | 175,812 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126,782 | 126,782 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 473,818 | 473,818 |
| 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182,582 | 182,582 |
| 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,187 | 12,187 |
| 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157,460 | 157,460 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,576 | 31,576 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,584 | 20,584 |
| 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52,134 | 52,134 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,177 | 18,177 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,602 | 1,602 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,164 | 1,164 |
| 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,693 | 3,693 |
| 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248,596 | 250,820 |
| 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 342,132 | 345,193 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,047,157 | 1,047,157 |
| 96 | 374 | 17 | 201 | 6 | 0 | 5 | 19 | 1 | 19 | 1,282 | 0 | 0 | 0 | 0 | 0 | 0 |
| 97 | 739 | 41 | 5,356 | 109 | 0 | 1,196 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 580 | 652 |
| 98 | 0 | 0 | 5,395 | 284 | 0 | 905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129 | 291 |
| 99 | 320,535 | 24,503 | 313,363 | 34,818 | 297 | 83,619 | 3,888 | 1,961 | 3,779 | 418,641 | 0 | 0 | 0 | 0 | 344,393 | 350,452 |
| Contig. U.S. | 2,449,395 | 250,259 | 11,592,476 | 1,116,662 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | NR | NR | NR | NR | 19,201,288 | 20,320,417 |

NR => Not Reported

1980 NAPAP 5.2 EMISSIONS INVENTORY, ANNUAL U.S. EMISSIONS, AREA SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 1 | 10,974 | 153 | 1,125 | 35 | 0 | 36,197 | 108 | 1 | 0 | 3,997 | 0 | 0 | 0 | 0 | 7,072 | 7,224 |
| 2 | 26,004 | 1,199 | 1,330 | 41 | 0 | 43,270 | 19 | 1 | 0 | 7,172 | 0 | 0 | 0 | 0 | 8,443 | 8,624 |
| 3 | 134,586 | 25,753 | 80,648 | 1,646 | 0 | 22,788 | 0 | 0 | 0 | 11,339 | 0 | 0 | 0 | 0 | 21,284 | 21,284 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 1,153 | 0 | 221,700 | 11,668 | 0 | 46,640 | 0 | 0 | 0 | 6,830 | 0 | 0 | 0 | 0 | 8,904 | 20,171 |
| 6 | 8,950 | 89,654 | 72,626 | 2,246 | 0 | 5,772,811 | 0 | 0 | 0 | 936,351 | 0 | 0 | 0 | 0 | 1,849,195 | 1,888,861 |
| 7 | 12,066 | 146 | 4,870 | 151 | 0 | 210 | 98 | 2 | 0 | 398 | 0 | 0 | 0 | 0 | 22 | 23 |
| 8 | 40,041 | 1,542 | 7,135 | 221 | 0 | 4,355 | 54 | 2 | 0 | 253 | 0 | 0 | 0 | 0 | 51 | 52 |
| 9 | 48,261 | 8,410 | 29,631 | 605 | 0 | 7,454 | 0 | 0 | 0 | 2,833 | 0 | 0 | 0 | 0 | 1,194 | 1,194 |
| 10 | 252,963 | 23,396 | 58,515 | 1,194 | 0 | 5,353 | 0 | 0 | 0 | 20,340 | 0 | 0 | 0 | 0 | 2,537 | 2,850 |
| 11 | 378 | 0 | 84,831 | 4,465 | 0 | 17,794 | 0 | 0 | 0 | 2,432 | 0 | 0 | 0 | 0 | 3,335 | 7,554 |
| 12 | 0 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 1 |
| 13 | 141 | 1 | 55 | 2 | 0 | 1 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 412,076 | 14,721 | 105,287 | 3,256 | 0 | 13,909 | 966 | 257 | 0 | 4,073 | 0 | 0 | 0 | 0 | 449 | 459 |
| 15 | 171 | 1 | 43 | 1 | 0 | 19 | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 | 1 | 1 |
| 16 | 33,935 | 5,108 | 29,153 | 595 | 0 | 7,004 | 0 | 0 | 0 | 2,566 | 0 | 0 | 0 | 0 | 114 | 114 |
| 17 | 127,175 | 2,610 | 26,866 | 548 | 0 | 2,463 | 0 | 0 | 0 | 9,550 | 0 | 0 | 0 | 0 | 863 | 970 |
| 18 | 23 | 0 | 1,672,971 | 88,051 | 0 | 235,445 | 0 | 0 | 0 | 141 | 0 | 0 | 0 | 0 | 3,594 | 8,142 |
| 19 | 6 | 258 | 92 | 3 | 0 | 282 | 0 | 0 | 0 | 122 | 0 | 0 | 0 | 0 | 110 | 112 |
| 20 | 70 | 0 | 74 | 4 | 0 | 3 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 1 | 1 |
| 21 | 1,355 | 1 | 2,536 | 448 | 64 | 848,608 | 1,355 | 0 | 0 | 100,562 | 0 | 0 | 0 | 0 | 56,050 | 282,851 |
| 22 | 1,165 | 1 | 990 | 175 | 0 | 8,903 | 5 | 0 | 0 | 6,585 | 0 | 0 | 0 | 0 | 1,581 | 7,976 |
| 23 | 5,893 | 15 | 7,743 | 1,366 | 2 | 26,473 | 85 | 0 | 0 | 19,168 | 0 | 0 | 0 | 0 | 7,518 | 37,941 |
| 24 | 8,169 | 3 | 47,922 | 8,457 | 0 | 941,815 | 0 | 0 | 0 | 220,182 | 0 | 0 | 0 | 0 | 307,795 | 307,795 |
| 25 | 131 | 0 | 1,194 | 211 | 0 | 26,473 | 0 | 0 | 0 | 4,406 | 0 | 0 | 0 | 0 | 8,248 | 8,248 |
| 26 | 10 | 0 | 145 | 26 | 0 | 3,134 | 0 | 0 | 0 | 660 | 0 | 0 | 0 | 0 | 1,266 | 1,266 |
| 28 | 60,868 | 3,258 | 1,357,034 | 150,782 | 6,729 | 8,802,939 | 0 | 0 | 0 | 631,561 | 0 | 0 | 0 | 0 | 1,660,984 | 1,790,845 |
| 30 | 78,812 | 4,192 | 1,685,950 | 187,328 | 6,717 | 32,148,186 | 0 | 0 | 0 | 3,016,666 | 0 | 0 | 0 | 0 | 3,714,674 | 4,005,102 |
| 32 | 21,079 | 376 | 409,152 | 45,461 | 2,610 | 2,746,546 | 0 | 0 | 0 | 158,963 | 0 | 0 | 0 | 0 | 581,293 | 626,741 |
| 34 | 27,269 | 777 | 520,630 | 57,848 | 2,468 | 10,165,693 | 0 | 0 | 0 | 754,307 | 0 | 0 | 0 | 0 | 1,307,505 | 1,409,731 |
| 36 | 6,435 | 1 | 158,012 | 17,557 | 1,813 | 2,007,498 | 0 | 0 | 0 | 39,764 | 0 | 0 | 0 | 0 | 213,063 | 229,722 |
| 38 | 7,622 | 42 | 170,158 | 18,906 | 1,131 | 4,982,687 | 0 | 0 | 0 | 124,898 | 0 | 0 | 0 | 0 | 444,321 | 479,060 |
| 39 | 3,017 | 69 | 62,113 | 6,901 | 2 | 2,246,824 | 0 | 0 | 0 | 6,228 | 0 | 0 | 0 | 0 | 180,458 | 194,791 |
| 41 | 78,395 | 1,392 | 626,838 | 69,649 | 0 | 222,921 | 0 | 0 | 0 | 121,240 | 0 | 0 | 0 | 0 | 101,642 | 103,405 |
| 43 | 108,546 | 2,185 | 946,082 | 105,120 | 0 | 653,091 | 0 | 0 | 0 | 307,466 | 0 | 0 | 0 | 0 | 276,795 | 281,596 |
| 44 | 67,848 | 998 | 740,854 | 82,317 | 0 | 245,672 | 0 | 0 | 0 | 86,079 | 0 | 0 | 0 | 0 | 133,677 | 140,385 |
| 45 | 116,568 | 2,059 | 680,779 | 75,642 | 0 | 265,816 | 0 | 0 | 0 | 51,285 | 0 | 0 | 0 | 0 | 218,515 | 222,303 |
| 46 | 3,718 | 5 | 27,923 | 864 | 0 | 137,306 | 0 | 0 | 0 | 55,963 | 0 | 0 | 0 | 0 | 81,144 | 82,393 |
| 47 | 731 | 0 | 7,272 | 225 | 0 | 486,569 | 0 | 0 | 0 | 1,398 | 0 | 0 | 0 | 0 | 28,105 | 28,537 |
| 48 | 6,870 | 18 | 67,384 | 2,084 | 0 | 199,865 | 0 | 0 | 0 | 2,984 | 0 | 0 | 0 | 0 | 80,827 | 82,071 |
| 49 | 3,309 | 141 | 156 | 5 | 0 | 4,804 | 0 | 0 | 6 | 3,203 | 0 | 0 | 0 | 0 | 523 | 534 |
| 50 | 11,197 | 858 | 81,948 | 1,672 | 0 | 29,264 | 0 | 0 | 0 | 8,947 | 0 | 0 | 0 | 0 | 25,614 | 25,614 |
| 51 | 192,471 | 15,397 | 30,993 | 633 | 0 | 1,058 | 0 | 0 | 0 | 14,600 | 0 | 0 | 0 | 0 | 2,213 | 2,485 |
| 52 | 2,472 | 0 | 9,196 | 484 | 0 | 1,234,247 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 336,254 | 362,961 |
| 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 876,717 | 876,717 |
| 55 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 26,553,364 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,829 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 4,548 | 5 | 107,527 | 18,975 | 0 | 4,428,616 | 0 | 0 | 0 | 537,752 | 0 | 0 | 0 | 0 | 759,188 | 759,188 |
| 61 | 2,728 | 4 | 63,218 | 11,156 | 0 | 2,082,316 | 0 | 0 | 0 | 371,867 | 0 | 0 | 0 | 0 | 334,646 | 334,646 |

1980 NAPAP 5.2 EMISSIONS INVENTORY, ANNUAL U.S. EMISSIONS, AREA SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 62 | 0 | 0 | 6,513 | 1,149 | 0 | 360,618 | 0 | 0 | 0 | 54,853 | 0 | 0 | 0 | 0 | 61,726 | 61,726 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 58 | 0 | 5,085 | 897 | 0 | 208,960 | 0 | 0 | 0 | 51,431 | 0 | 0 | 0 | 0 | 38,405 | 38,405 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,172 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117,734 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,547 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40,635 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,198 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,682 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134,719 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 459,153 | 459,153 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 272,262 | 272,262 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 159,494 | 159,494 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115,015 | 115,015 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 429,840 | 429,840 |
| 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165,636 | 165,636 |
| 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,056 | 11,056 |
| 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142,845 | 142,845 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,645 | 28,645 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,673 | 18,673 |
| 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47,295 | 47,295 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,490 | 16,490 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,453 | 1,453 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,056 | 1,056 |
| 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,350 | 3,350 |
| 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 225,523 | 227,540 |
| 94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 310,377 | 313,153 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 949,965 | 949,965 |
| 96 | 339 | 15 | 182 | 6 | 0 | 5 | 17 | 1 | 17 | 1,163 | 0 | 0 | 0 | 0 | 0 | 0 |
| 97 | 670 | 37 | 4,859 | 99 | 0 | 1,085 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 526 | 591 |
| 98 | 0 | 0 | 4,894 | 258 | 0 | 821 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 264 |
| 99 | 290,784 | 22,229 | 284,278 | 31,586 | 269 | 75,858 | 3,527 | 1,779 | 3,428 | 379,785 | 0 | 0 | 0 | 0 | 312,428 | 317,924 |
| Contig. U.S. | 2,222,054 | 227,031 | 10,516,517 | 1,013,019 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | NR | NR | NR | NR | 17,419,116 | 18,434,373 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR<br>METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 5,057 | 2,890 | 1,228 | 0 | 0 | 1,228 | 13,581 | 0 | 0 | 0 | 9,897 |
| 2 | 0 | 6,037 | 3,449 | 1,466 | 0 | 0 | 1,466 | 16,212 | 0 | 0 | 0 | 11,814 |
| 3 | 0 | 0 | 11,280 | 87,049 | 29,371 | 27,030 | 0 | 137,704 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 765,467 | 0 | 19,969 | 33,886 | 0 | 18,153 | 0 | 32,474 | 0 | 0 | 0 | 0 |
| 6 | 0 | 1,322,196 | 755,540 | 321,105 | 0 | 0 | 321,105 | 3,551,040 | 0 | 0 | 0 | 2,587,726 |
| 7 | 0 | 16 | 9 | 4 | 0 | 0 | 4 | 43 | 0 | 0 | 0 | 31 |
| 8 | 0 | 36 | 21 | 9 | 0 | 0 | 9 | 98 | 0 | 0 | 0 | 71 |
| 9 | 0 | 0 | 633 | 4,882 | 1,647 | 1,516 | 0 | 7,723 | 0 | 0 | 0 | 0 |
| 10 | 33,682 | 0 | 0 | 11,826 | 0 | 0 | 0 | 2,850 | 0 | 0 | 0 | 0 |
| 11 | 286,681 | 0 | 7,479 | 12,691 | 0 | 6,799 | 0 | 12,162 | 0 | 0 | 0 | 0 |
| 12 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 321 | 184 | 78 | 0 | 0 | 78 | 863 | 0 | 0 | 0 | 629 |
| 15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 |
| 16 | 0 | 0 | 61 | 468 | 158 | 145 | 0 | 740 | 0 | 0 | 0 | 0 |
| 17 | 11,462 | 0 | 0 | 4,024 | 0 | 0 | 0 | 970 | 0 | 0 | 0 | 0 |
| 18 | 308,986 | 0 | 8,061 | 13,678 | 0 | 7,328 | 0 | 13,109 | 0 | 0 | 0 | 0 |
| 19 | 0 | 79 | 45 | 19 | 0 | 0 | 19 | 211 | 0 | 0 | 0 | 154 |
| 20 | 5 | 7 | 5 | 4 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| 21 | 14,026,514 | 79,198 | 48,084 | 87,683 | 16,971 | 0 | 0 | 390,333 | 181,024 | 175,367 | 0 | 5,657 |
| 22 | 395,526 | 2,233 | 1,356 | 2,473 | 479 | 0 | 0 | 11,007 | 5,105 | 4,945 | 0 | 160 |
| 23 | 1,881,494 | 10,623 | 6,450 | 11,762 | 2,276 | 0 | 0 | 52,359 | 24,282 | 23,523 | 0 | 759 |
| 24 | 0 | 0 | 132,351 | 101,572 | 101,572 | 80,026 | 0 | 1,520,500 | 2,129,931 | 0 | 0 | 1,360,447 |
| 25 | 0 | 0 | 3,547 | 2,722 | 2,722 | 2,145 | 0 | 40,746 | 57,077 | 0 | 0 | 36,457 |
| 26 | 0 | 0 | 545 | 418 | 418 | 329 | 0 | 6,256 | 8,764 | 0 | 0 | 5,598 |
| 28 | 7,485,696 | 501,434 | 0 | 1,916,195 | 0 | 0 | 0 | 11,783,703 | 4,566,633 | 2,149,004 | 0 | 2,722,071 |
| 30 | 16,741,239 | 1,121,423 | 0 | 4,28[illegible],437 | 0 | 0 | 0 | 26,353,433 | 10,212,957 | 4,806,097 | 0 | 6,087,723 |
| 32 | 2,619,762 | 175,486 | 0 | 670,609 | 0 | 0 | 0 | 4,123,932 | 1,598,180 | 752,085 | 0 | 952,641 |
| 34 | 5,892,643 | 394,722 | 0 | 1,508,404 | 0 | 0 | 0 | 9,275,979 | 3,594,794 | 1,691,668 | 0 | 2,142,779 |
| 36 | 960,231 | 64,322 | 0 | 245,801 | 0 | 0 | 0 | 1,511,560 | 585,787 | 275,664 | 0 | 349,175 |
| 38 | 2,002,459 | 134,136 | 0 | 512,591 | 0 | 0 | 0 | 3,152,196 | 1,221,596 | 574,869 | 0 | 728,167 |
| 39 | 512,297 | 204,529 | 0 | 0 | 0 | 0 | 0 | 1,223,279 | 329,195 | 816,169 | 0 | 0 |
| 41 | 133,392 | 0 | 0 | 0 | 0 | 0 | 0 | 317,451 | 238,864 | 44,464 | 17,579 | 58,940 |
| 43 | 363,257 | 0 | 0 | 0 | 0 | 0 | 0 | 864,495 | 650,483 | 121,086 | 47,871 | 160,509 |
| 44 | 437,998 | 21,058 | 0 | 88,442 | 0 | 39,307 | 0 | 787,554 | 609,266 | 151,615 | 0 | 0 |
| 45 | 286,770 | 0 | 0 | 0 | 0 | 0 | 0 | 682,468 | 515,741 | 95,590 | 37,791 | 126,712 |
| 46 | 0 | 51,083 | 0 | 0 | 0 | 0 | 0 | 168,081 | 0 | 0 | 0 | 144,187 |
| 47 | 0 | 17,693 | 0 | 0 | 0 | 0 | 0 | 58,215 | 0 | 0 | 0 | 49,940 |
| 48 | 0 | 50,384 | 0 | 0 | 0 | 0 | 0 | 167,425 | 0 | 0 | 0 | 143,624 |
| 49 | 0 | 374 | 214 | 91 | 0 | 0 | 91 | 1,005 | 0 | 0 | 0 | 732 |
| 50 | 0 | 0 | 13,575 | 104,762 | 35,347 | 32,530 | 0 | 165,723 | 0 | 0 | 0 | 0 |
| 51 | 29,375 | 0 | 0 | 10,314 | 0 | 0 | 0 | 2,485 | 0 | 0 | 0 | 0 |
| 52 | 954,582 | 381,107 | 0 | 0 | 0 | 0 | 0 | 2,279,383 | 613,401 | 1,520,799 | 0 | 0 |
| 54 | 0 | 0 | 341,918 | 2,866,849 | 955,616 | 1,253,699 | 0 | 5,251,507 | 0 | 0 | 0 | 1,025,753 |
| 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 0 | 0 | 326,449 | 250,531 | 250,531 | 197,388 | 0 | 3,750,371 | 5,253,557 | 0 | 0 | 3,355,595 |
| 61 | 0 | 0 | 143,897 | 110,433 | 110,433 | 87,007 | 0 | 1,653,142 | 2,315,738 | 0 | 0 | 1,479,127 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | | | | | | THOUSAND MOLES/YEAR | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 62 | 0 | 0 | 26,542 | 20,369 | 20,369 | 16,049 | 0 | 304,924 | 427,140 | 0 | 0 | 272,826 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 16,514 | 12,674 | 12,674 | 9,985 | 0 | 189,719 | 265,760 | 0 | 0 | 169,748 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,832,956 | 0 | 0 | 0 | 941,258 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,429,370 | 0 | 0 | 0 | 449,231 |
| 80 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,220,122 | 0 | 0 | 0 | 0 |
| 81 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,197,297 | 0 | 0 | 0 | 0 |
| 82 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,354,261 | 0 | 0 | 0 | 0 |
| 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 84 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111,995 | 0 | 0 | 0 | 0 |
| 85 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 689,939 | 0 | 0 | 0 | 0 |
| 86 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290,175 | 0 | 0 | 0 | 0 |
| 87 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 189,161 | 0 | 0 | 0 | 0 |
| 88 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 235,056 | 0 | 0 | 0 | 0 |
| 89 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77,832 | 0 | 0 | 0 | 0 |
| 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,722 | 0 | 0 | 0 | 0 |
| 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,697 | 0 | 0 | 0 | 0 |
| 92 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33,938 | 0 | 0 | 0 | 0 |
| 93 | 109,219 | 9,102 | 6,826 | 11,377 | 54,609 | 13,652 | 0 | 2,170,721 | 6,826 | 0 | 0 | 102,393 |
| 94 | 150,313 | 12,526 | 9,395 | 15,658 | 75,156 | 18,789 | 0 | 2,987,468 | 9,395 | 0 | 0 | 140,918 |
| 95 | 0 | 0 | 0 | 0 | 873,963 | 0 | 0 | 15,835,826 | 0 | 0 | 0 | 0 |
| 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 97 | 6,988 | 0 | 0 | 2,453 | 0 | 0 | 0 | 591 | 0 | 0 | 0 | 0 |
| 98 | 10,030 | 0 | 262 | 444 | 0 | 238 | 0 | 426 | 0 | 0 | 0 | 0 |
| 99 | 251,159 | 50,868 | 0 | 0 | 0 | 0 | 0 | 1,799,443 | 693,072 | 282,951 | 0 | 365,611 |
| Contig. U.S. | 56,657,225 | 4,616,552 | 1,887,549 | 13,332,479 | 2,544,314 | 1,812,116 | 324,000 | 115,361,007 | 36,114,563 | 13,485,899 | 103,241 | 25,989,063 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
| 1 | 0 | 4,407 | 32,580 | 7,657 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 5,260 | 38,893 | 9,141 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 672,771 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 11,295 | 4,841 | 0 | 0 | 0 | 58,494 | 0 | 0 | 0 | 0 | 0 |
| 6 | 0 | 1,152,199 | 8,518,718 | 2,002,182 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 14 | 102 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 32 | 235 | 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 37,730 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 68,704 | 0 | 0 | 23,680 | 0 | 0 |
| 11 | 4,230 | 1,813 | 0 | 0 | 0 | 21,907 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 280 | 2,070 | 487 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 | 3,615 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 23,379 | 0 | 0 | 8,058 | 0 | 0 |
| 18 | 4,559 | 1,954 | 0 | 0 | 0 | 23,612 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 69 | 507 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 21 | 53,741 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 333,763 | 0 | 0 |
| 22 | 1,515 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,412 | 0 | 0 |
| 23 | 7,209 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,770 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 644,701 | 2,149,004 | 465,617 | 89,542 | 340,259 | 2,274,362 | 0 | 0 | 0 | 143,267 | 0 |
| 30 | 1,441,829 | 4,806,097 | 1,041,321 | 200,254 | 760,965 | 5,086,453 | 0 | 0 | 0 | 320,408 | 0 |
| 32 | 225,625 | 752,085 | 162,952 | 31,337 | 119,080 | 795,956 | 0 | 0 | 0 | 50,139 | 0 |
| 34 | 507,500 | 1,691,668 | 366,528 | 70,486 | 267,847 | 1,790,348 | 0 | 0 | 0 | 112,778 | 0 |
| 36 | 82,699 | 275,664 | 59,727 | 11,486 | 43,647 | 291,745 | 0 | 0 | 0 | 18,378 | 0 |
| 38 | 172,461 | 574,869 | 124,555 | 23,953 | 91,021 | 608,403 | 0 | 0 | 0 | 38,325 | 0 |
| 39 | 66,228 | 216,217 | 72,072 | 0 | 132,457 | 0 | 0 | 0 | 0 | 0 | 0 |
| 41 | 0 | 2,068 | 0 | 0 | 109,609 | 187,162 | 367,085 | 0 | 0 | 0 | 0 |
| 43 | 0 | 5,632 | 0 | 0 | 298,490 | 509,686 | 999,660 | 0 | 0 | 0 | 0 |
| 44 | 39,307 | 30,884 | 4,212 | 0 | 2,808 | 649,977 | 0 | 0 | 0 | 0 | 0 |
| 45 | 0 | 4,446 | 0 | 0 | 233,417 | 404,590 | 789,173 | 0 | 0 | 0 | 0 |
| 46 | 7,415 | 0 | 116,998 | 0 | 158,194 | 0 | 0 | 322,155 | 0 | 0 | 0 |
| 47 | 2,568 | 0 | 40,522 | 0 | 54,791 | 0 | 0 | 111,579 | 0 | 0 | 0 |
| 48 | 7,386 | 0 | 116,541 | 0 | 157,576 | 0 | 0 | 320,897 | 0 | 0 | 0 |
| 49 | 0 | 326 | 2,410 | 566 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 | 0 | 0 | 0 | 0 | 0 | 809,662 | 0 | 0 | 0 | 0 | 0 |
| 51 | 0 | 0 | 0 | 0 | 0 | 59,918 | 0 | 0 | 20,652 | 0 | 0 |
| 52 | 123,406 | 402,885 | 134,295 | 0 | 246,812 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54 | 131,507 | 236,712 | 184,110 | 0 | 122,740 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 61 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
| 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 71 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 76 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 78 | 55,098 | 179,069 | 73,464 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110,196 | 68,873 | 0 |
| 80 | 0 | 207,341 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 81 | 41,405 | 4,601 | 0 | 0 | 0 | 0 | 0 | 0 | 22,329 | 172,253 | 349,290 |
| 82 | 0 | 249,306 | 103,161 | 176,234 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 83 | 475,372 | 155,697 | 0 | 0 | 0 | 0 | 0 | 0 | 236,411 | 395,451 | 94,564 |
| 84 | 0 | 6,412 | 2,653 | 4,533 | 0 | 0 | 0 | 0 | 1,964,428 | 0 | 0 |
| 85 | 0 | 145,701 | 0 | 0 | 0 | 0 | 0 | 0 | 6,081 | 10,171 | 2,432 |
| 86 | 0 | 16,614 | 6,875 | 11,744 | 0 | 0 | 0 | 0 | 0 | 281,404 | 459,959 |
| 87 | 0 | 10,831 | 4,482 | 7,656 | 0 | 0 | 0 | 0 | 15,755 | 26,354 | 6,302 |
| 88 | 0 | 51,551 | 31,215 | 0 | 0 | 0 | 0 | 0 | 10,270 | 17,180 | 4,108 |
| 89 | 0 | 21,931 | 0 | 0 | 0 | 0 | 0 | 0 | 105,941 | 156,546 | 0 |
| 90 | 0 | 843 | 349 | 596 | 0 | 0 | 0 | 0 | 0 | 56,560 | 17,644 |
| 91 | 0 | 612 | 253 | 433 | 0 | 0 | 0 | 0 | 799 | 1,337 | 320 |
| 92 | 0 | 1,943 | 804 | 1,374 | 0 | 0 | 0 | 0 | 581 | 971 | 232 |
| 93 | 13,652 | 65,986 | 52,334 | 15,928 | 6,826 | 11,377 | 0 | 0 | 1,843 | 3,082 | 737 |
| 94 | 18,789 | 90,814 | 72,025 | 21,921 | 9,395 | 15,658 | 0 | 0 | 134,248 | 147,900 | 25,029 |
| 95 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 184,760 | 203,549 | 34,447 |
| 96 | 0 | 0 | 0 | 0 | 0 | 189,992 | 0 | 0 | 227,990 | 0 | 104,496 |
| 97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 98 | 148 | 63 | 0 | 0 | 0 | 14,254 | 0 | 0 | 4,913 | 0 | 0 |
| 99 | 130,348 | 79,481 | 25,434 | 0 | 47,688 | 766 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | 50,868 | 15,896 | 9,538 | 1,179,493 | 57,226 | 28,613 |
| Contig. U.S. | 4,269,998 | 13,608,223 | 11,858,021 | 2,687,709 | 3,203,622 | 14,661,391 | 2,171,814 | 764,170 | 4,646,372 | 2,282,149 | 1,128,174 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| STATE | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| ALABAMA | 80,040 | 4,252 | 233,503 | 22,237 | 496 | 1,528,003 | 251 | 21 | 11,362 | 357,944 | 0 | 0 | 0 | 0 | 338,923 | 358,755 |
| ARIZONA | 19,942 | 1,566 | 142,625 | 14,505 | 293 | 1,245,599 | 75 | 16 | 6,912 | 814,038 | 0 | 0 | 0 | 0 | 240,850 | 257,295 |
| ARKANSAS | 31,473 | 2,142 | 152,714 | 14,904 | 263 | 910,150 | 25 | 32 | 13,094 | 840,635 | 0 | 0 | 0 | 0 | 207,710 | 217,992 |
| CALIFORNIA | 129,034 | 13,116 | 957,932 | 98,932 | 2,427 | 9,169,893 | 472 | 14 | 27,360 | 1,400,475 | 0 | 0 | 0 | 0 | 1,919,526 | 2,061,809 |
| COLORADO | 22,759 | 1,721 | 150,014 | 15,247 | 314 | 2,191,485 | 56 | 0 | 17,192 | 1,081,969 | 0 | 0 | 0 | 0 | 340,410 | 362,939 |
| CONNECTICUT | 29,141 | 5,882 | 106,721 | 10,523 | 303 | 1,180,569 | 105 | 0 | 1,946 | 112,066 | 0 | 0 | 0 | 0 | 260,138 | 274,319 |
| DELAWARE | 27,780 | 2,680 | 33,196 | 3,100 | 70 | 234,359 | 46 | 0 | 2,050 | 32,807 | 0 | 0 | 0 | 0 | 51,233 | 53,859 |
| DIST. OF COLUM. | 8,161 | 722 | 20,690 | 2,046 | 37 | 334,671 | 66 | 16 | 59 | 14,236 | 0 | 0 | 0 | 0 | 43,630 | 47,231 |
| FLORIDA | 84,235 | 5,532 | 356,384 | 37,452 | 1,064 | 3,926,172 | 164 | 198 | 6,906 | 819,404 | 0 | 0 | 0 | 0 | 780,255 | 816,959 |
| GEORGIA | 37,687 | 2,882 | 282,282 | 28,851 | 652 | 2,173,375 | 61 | 17 | 15,470 | 840,251 | 0 | 0 | 0 | 0 | 481,061 | 501,843 |
| IDAHO | 19,600 | 2,078 | 73,829 | 9,225 | 99 | 1,238,718 | 15 | 69 | 8,012 | 318,708 | 0 | 0 | 0 | 0 | 219,441 | 225,750 |
| ILLINOIS | 114,106 | 9,120 | 459,368 | 46,672 | 1,117 | 3,934,369 | 1,008 | 47 | 28,657 | 735,514 | 0 | 0 | 0 | 0 | 835,531 | 892,629 |
| INDIANA | 144,303 | 9,345 | 297,766 | 29,748 | 639 | 2,078,557 | 331 | 120 | 17,666 | 295,397 | 0 | 0 | 0 | 0 | 475,241 | 507,003 |
| IOWA | 26,930 | 1,381 | 163,456 | 16,990 | 356 | 1,050,792 | 71 | 5 | 61,150 | 1,086,371 | 0 | 0 | 0 | 0 | 219,375 | 238,339 |
| KANSAS | 34,486 | 1,281 | 275,625 | 23,459 | 249 | 1,011,199 | 62 | 7 | 34,093 | 1,809,113 | 0 | 0 | 0 | 0 | 209,966 | 225,356 |
| KENTUCKY | 51,676 | 5,090 | 216,226 | 21,685 | 412 | 1,477,488 | 235 | 73 | 8,069 | 324,834 | 0 | 0 | 0 | 0 | 338,901 | 352,949 |
| LOUISIANA | 164,422 | 10,581 | 250,529 | 23,197 | 505 | 1,542,880 | 121 | 98 | 4,454 | 440,200 | 0 | 0 | 0 | 0 | 329,807 | 347,058 |
| MAINE | 18,580 | 3,981 | 42,196 | 4,132 | 123 | 461,937 | 14 | 2 | 417 | 108,957 | 0 | 0 | 0 | 0 | 124,103 | 130,105 |
| MARYLAND | 28,208 | 4,524 | 154,338 | 15,419 | 451 | 1,426,057 | 13 | 47 | 2,991 | 191,542 | 0 | 0 | 0 | 0 | 303,376 | 318,323 |
| MASSACHUSETTS | 61,028 | 8,521 | 175,942 | 17,203 | 504 | 2,118,954 | 86 | 2 | 103 | 192,880 | 0 | 0 | 0 | 0 | 421,496 | 450,443 |
| MICHIGAN | 43,772 | 8,153 | 345,462 | 34,243 | 972 | 3,341,867 | 188 | 11 | 10,205 | 736,339 | 0 | 0 | 0 | 0 | 720,369 | 770,614 |
| MINNESOTA | 28,224 | 4,969 | 210,214 | 21,590 | 459 | 1,894,733 | 161 | 7 | 32,196 | 1,068,450 | 0 | 0 | 0 | 0 | 403,362 | 427,656 |
| MISSISSIPPI | 52,834 | 4,230 | 182,029 | 15,993 | 297 | 908,906 | 12 | 0 | 7,452 | 562,973 | 0 | 0 | 0 | 0 | 209,239 | 220,899 |
| MISSOURI | 62,377 | 5,851 | 237,283 | 24,477 | 561 | 2,125,948 | 146 | 18 | 17,258 | 2,566,115 | 0 | 0 | 0 | 0 | 458,893 | 489,566 |
| MONTANA | 22,691 | 1,544 | 91,446 | 10,853 | 97 | 1,282,577 | 9 | 0 | 3,705 | 861,449 | 0 | 0 | 0 | 0 | 224,386 | 230,514 |
| NEBRASKA | 13,903 | 690 | 109,194 | 11,142 | 169 | 599,362 | 60 | 5 | 44,329 | 1,037,379 | 0 | 0 | 0 | 0 | 123,167 | 132,498 |
| NEVADA | 7,219 | 553 | 44,564 | 4,718 | 101 | 508,333 | 39 | 2 | 704 | 891,181 | 0 | 0 | 0 | 0 | 90,550 | 96,164 |
| NEW HAMPSHIRE | 12,063 | 2,248 | 29,125 | 2,925 | 100 | 347,668 | 10 | 0 | 1 | 62,310 | 0 | 0 | 0 | 0 | 87,305 | 91,764 |
| NEW JERSEY | 76,282 | 14,170 | 259,930 | 25,180 | 706 | 2,210,361 | 124 | 26 | 68 | 304,009 | 0 | 0 | 0 | 0 | 591,931 | 629,848 |
| NEW MEXICO | 12,293 | 1,263 | 87,562 | 9,361 | 170 | 905,533 | 4 | 0 | 4,374 | 1,214,514 | 0 | 0 | 0 | 0 | 153,839 | 162,467 |
| NEW YORK | 110,225 | 19,585 | 408,565 | 40,380 | 1,257 | 4,644,867 | 69 | 5 | 13,959 | 556,823 | 0 | 0 | 0 | 0 | 1,070,711 | 1,125,410 |
| NORTH CAROLINA | 50,165 | 8,377 | 249,879 | 25,837 | 706 | 2,162,964 | 154 | 240 | 12,455 | 584,611 | 0 | 0 | 0 | 0 | 531,024 | 555,007 |
| NORTH DAKOTA | 19,500 | 1,386 | 57,919 | 5,825 | 67 | 226,659 | 48 | 13 | 6,441 | 1,246,423 | 0 | 0 | 0 | 0 | 50,658 | 54,742 |
| OHIO | 65,723 | 9,197 | 512,406 | 51,228 | 1,184 | 4,006,231 | 446 | 755 | 14,322 | 792,991 | 0 | 0 | 0 | 0 | 880,295 | 941,935 |
| OKLAHOMA | 20,181 | 2,226 | 271,214 | 23,587 | 408 | 1,515,621 | 25 | 5 | 13,862 | 1,039,691 | 0 | 0 | 0 | 0 | 261,648 | 273,463 |
| OREGON | 31,490 | 4,616 | 163,937 | 17,936 | 314 | 1,423,588 | 185 | 0 | 4,249 | 1,816,674 | 0 | 0 | 0 | 0 | 310,452 | 326,865 |
| PENNSYLVANIA | 115,853 | 16,547 | 496,533 | 49,344 | 1,155 | 3,906,891 | 640 | 21 | 15,758 | 1,244,910 | 0 | 0 | 0 | 0 | 911,242 | 950,321 |
| RHODE ISLAND | 7,066 | 1,203 | 29,543 | 2,839 | 78 | 314,572 | 13 | 0 | 0 | 31,258 | 0 | 0 | 0 | 0 | 71,205 | 75,722 |
| SOUTH CAROLINA | 28,632 | 2,727 | 138,681 | 14,491 | 374 | 1,128,686 | 72 | 52 | 3,420 | 308,963 | 0 | 0 | 0 | 0 | 264,087 | 279,079 |
| SOUTH DAKOTA | 6,966 | 546 | 48,498 | 5,518 | 65 | 494,277 | 15 | 1 | 12,941 | 682,573 | 0 | 0 | 0 | 0 | 93,595 | 98,137 |
| TENNESSEE | 37,934 | 4,925 | 221,770 | 23,274 | 589 | 1,797,709 | 170 | 114 | 7,824 | 541,485 | 0 | 0 | 0 | 0 | 420,402 | 443,920 |
| TEXAS | 270,694 | 11,972 | 1,878,177 | 143,555 | 1,795 | 6,937,315 | 320 | 59 | 50,179 | 5,549,442 | 0 | 0 | 0 | 0 | 1,411,256 | 1,481,514 |
| UTAH | 28,203 | 1,707 | 89,655 | 8,492 | 148 | 956,285 | 41 | 16 | 1,909 | 628,938 | 0 | 0 | 0 | 0 | 152,488 | 163,138 |
| VERMONT | 6,642 | 1,727 | 21,353 | 2,140 | 62 | 202,038 | 3 | 0 | 3 | 99,345 | 0 | 0 | 0 | 0 | 55,766 | 58,435 |
| VIRGINIA | 65,850 | 8,420 | 236,463 | 23,660 | 612 | 1,935,838 | 281 | 67 | 6,374 | 357,304 | 0 | 0 | 0 | 0 | 440,835 | 461,677 |
| WASHINGTON | 49,122 | 5,551 | 202,186 | 21,201 | 418 | 2,180,243 | 120 | 28 | 8,021 | 261,465 | 0 | 0 | 0 | 0 | 424,675 | 450,724 |
| WEST VIRGINIA | 14,738 | 2,378 | 112,133 | 10,541 | 203 | 631,776 | 23 | 0 | 327 | 321,511 | 0 | 0 | 0 | 0 | 149,919 | 156,298 |
| WISCONSIN | 28,124 | 5,666 | 204,753 | 20,998 | 513 | 1,847,355 | 191 | 18 | 31,403 | 607,920 | 0 | 0 | 0 | 0 | 413,237 | 442,178 |
| WYOMING | 27,038 | 1,435 | 106,670 | 9,808 | 83 | 507,399 | 26 | 4 | 1,500 | 458,736 | 0 | 0 | 0 | 0 | 83,781 | 88,907 |
| CONTIG U.S. | 2,449,395 | 250,259 | 11,592,476 | 1,116,662 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | NR | NR | NR | NR | 19,201,289 | 20,320,417 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| STATE | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METRIC TONS | | | | | | | | | | | | | | | |
| ALABAMA | 72,611 | 3,857 | 211,830 | 20,173 | 450 | 1,386,181 | 228 | 19 | 10,307 | 324,721 | 0 | 0 | 0 | 0 | 307,466 | 325,457 |
| ARIZONA | 18,091 | 1,421 | 129,388 | 13,158 | 266 | 1,129,988 | 68 | 15 | 6,270 | 738,483 | 0 | 0 | 0 | 0 | 218,495 | 233,414 |
| ARKANSAS | 28,552 | 1,943 | 138,540 | 13,521 | 239 | 825,674 | 23 | 29 | 11,879 | 762,611 | 0 | 0 | 0 | 0 | 188,431 | 197,759 |
| CALIFORNIA | 117,058 | 11,899 | 869,021 | 89,750 | 2,202 | 8,318,787 | 428 | 13 | 24,821 | 1,270,490 | 0 | 0 | 0 | 0 | 1,741,365 | 1,870,442 |
| COLORADO | 20,647 | 1,561 | 136,090 | 13,832 | 285 | 1,988,082 | 51 | 0 | 15,596 | 981,546 | 0 | 0 | 0 | 0 | 308,815 | 329,252 |
| CONNECTICUT | 26,436 | 5,336 | 96,816 | 9,546 | 275 | 1,070,994 | 95 | 0 | 1,765 | 101,665 | 0 | 0 | 0 | 0 | 235,993 | 248,858 |
| DELAWARE | 25,202 | 2,431 | 30,115 | 2,813 | 64 | 212,607 | 42 | 0 | 1,860 | 29,762 | 0 | 0 | 0 | 0 | 46,477 | 48,860 |
| DIST. OF COLUM. | 7,404 | 655 | 18,770 | 1,856 | 34 | 303,608 | 60 | 15 | 54 | 12,915 | 0 | 0 | 0 | 0 | 39,581 | 42,847 |
| FLORIDA | 76,417 | 5,019 | 323,306 | 33,975 | 965 | 3,561,763 | 149 | 180 | 6,265 | 743,351 | 0 | 0 | 0 | 0 | 707,835 | 741,133 |
| GEORGIA | 34,189 | 2,615 | 256,082 | 26,173 | 591 | 1,971,653 | 55 | 15 | 14,034 | 762,263 | 0 | 0 | 0 | 0 | 436,411 | 455,264 |
| IDAHO | 17,781 | 1,885 | 66,976 | 8,369 | 90 | 1,123,746 | 14 | 63 | 7,269 | 289,127 | 0 | 0 | 0 | 0 | 199,074 | 204,797 |
| ILLINOIS | 103,515 | 8,274 | 416,732 | 42,340 | 1,013 | 3,569,200 | 914 | 43 | 25,997 | 667,247 | 0 | 0 | 0 | 0 | 757,981 | 809,780 |
| INDIANA | 130,909 | 8,478 | 270,129 | 26,987 | 580 | 1,885,635 | 300 | 109 | 16,026 | 267,980 | 0 | 0 | 0 | 0 | 431,131 | 459,945 |
| IOWA | 24,430 | 1,253 | 148,285 | 15,413 | 323 | 953,262 | 64 | 5 | 55,475 | 985,539 | 0 | 0 | 0 | 0 | 199,014 | 216,218 |
| KANSAS | 31,285 | 1,162 | 250,043 | 21,282 | 226 | 917,344 | 56 | 6 | 30,929 | 1,641,200 | 0 | 0 | 0 | 0 | 190,477 | 204,439 |
| KENTUCKY | 46,880 | 4,618 | 196,157 | 19,672 | 374 | 1,340,355 | 213 | 66 | 7,320 | 294,684 | 0 | 0 | 0 | 0 | 307,445 | 320,190 |
| LOUISIANA | 149,161 | 9,599 | 227,276 | 21,044 | 458 | 1,399,677 | 110 | 89 | 4,041 | 399,343 | 0 | 0 | 0 | 0 | 299,195 | 314,845 |
| MAINE | 16,855 | 3,612 | 38,279 | 3,748 | 112 | 419,062 | 13 | 2 | 379 | 98,844 | 0 | 0 | 0 | 0 | 112,585 | 118,029 |
| MARYLAND | 25,590 | 4,104 | 140,013 | 13,988 | 409 | 1,293,697 | 12 | 43 | 2,713 | 173,764 | 0 | 0 | 0 | 0 | 275,218 | 288,777 |
| MASSACHUSETTS | 55,364 | 7,730 | 159,612 | 15,606 | 457 | 1,922,283 | 78 | 2 | 94 | 174,978 | 0 | 0 | 0 | 0 | 382,374 | 408,635 |
| MICHIGAN | 39,709 | 7,396 | 313,398 | 31,065 | 882 | 3,031,691 | 171 | 10 | 9,258 | 667,996 | 0 | 0 | 0 | 0 | 653,507 | 699,089 |
| MINNESOTA | 25,604 | 4,508 | 190,703 | 19,587 | 416 | 1,718,873 | 146 | 6 | 29,208 | 969,282 | 0 | 0 | 0 | 0 | 365,924 | 387,963 |
| MISSISSIPPI | 47,930 | 3,837 | 165,134 | 14,509 | 269 | 824,546 | 11 | 0 | 6,760 | 510,721 | 0 | 0 | 0 | 0 | 189,819 | 200,396 |
| MISSOURI | 56,587 | 5,308 | 215,260 | 22,205 | 509 | 1,928,628 | 132 | 16 | 15,656 | 2,327,940 | 0 | 0 | 0 | 0 | 416,300 | 444,126 |
| MONTANA | 20,585 | 1,401 | 82,958 | 9,846 | 88 | 1,163,534 | 8 | 0 | 3,361 | 781,493 | 0 | 0 | 0 | 0 | 203,560 | 209,119 |
| NEBRASKA | 12,613 | 626 | 99,059 | 10,108 | 153 | 543,732 | 54 | 5 | 40,214 | 941,094 | 0 | 0 | 0 | 0 | 111,735 | 120,200 |
| NEVADA | 6,549 | 502 | 40,427 | 4,280 | 92 | 461,152 | 35 | 2 | 639 | 808,466 | 0 | 0 | 0 | 0 | 82,145 | 87,238 |
| NEW HAMPSHIRE | 10,943 | 2,039 | 26,422 | 2,653 | 91 | 315,399 | 9 | 0 | 1 | 56,527 | 0 | 0 | 0 | 0 | 79,202 | 83,247 |
| NEW JERSEY | 69,202 | 12,855 | 235,805 | 22,843 | 640 | 2,005,206 | 112 | 24 | 62 | 275,792 | 0 | 0 | 0 | 0 | 536,991 | 571,389 |
| NEW MEXICO | 11,152 | 1,146 | 79,435 | 8,492 | 154 | 821,486 | 4 | 0 | 3,968 | 1,101,789 | 0 | 0 | 0 | 0 | 139,561 | 147,388 |
| NEW YORK | 99,994 | 17,767 | 370,644 | 36,632 | 1,140 | 4,213,753 | 63 | 5 | 12,663 | 505,141 | 0 | 0 | 0 | 0 | 971,333 | 1,020,955 |
| NORTH CAROLINA | 45,509 | 7,599 | 226,686 | 23,439 | 640 | 1,962,208 | 140 | 218 | 11,299 | 530,350 | 0 | 0 | 0 | 0 | 481,737 | 503,494 |
| NORTH DAKOTA | 17,690 | 1,257 | 52,543 | 5,285 | 61 | 205,622 | 44 | 12 | 5,843 | 1,130,736 | 0 | 0 | 0 | 0 | 45,956 | 49,662 |
| OHIO | 59,623 | 8,343 | 464,847 | 46,473 | 1,074 | 3,634,392 | 405 | 685 | 12,992 | 719,389 | 0 | 0 | 0 | 0 | 798,590 | 854,509 |
| OKLAHOMA | 18,308 | 2,019 | 246,041 | 21,398 | 370 | 1,374,948 | 23 | 5 | 12,575 | 943,192 | 0 | 0 | 0 | 0 | 237,363 | 248,082 |
| OREGON | 28,567 | 4,188 | 148,722 | 16,271 | 285 | 1,291,457 | 168 | 0 | 3,855 | 1,648,059 | 0 | 0 | 0 | 0 | 281,638 | 296,527 |
| PENNSYLVANIA | 105,100 | 15,011 | 450,447 | 44,765 | 1,048 | 3,544,272 | 581 | 19 | 14,295 | 1,129,363 | 0 | 0 | 0 | 0 | 826,664 | 862,116 |
| RHODE ISLAND | 6,410 | 1,091 | 26,801 | 2,576 | 71 | 285,375 | 12 | 0 | 0 | 28,357 | 0 | 0 | 0 | 0 | 64,596 | 68,694 |
| SOUTH CAROLINA | 25,975 | 2,474 | 125,810 | 13,146 | 339 | 1,023,927 | 65 | 47 | 3,103 | 280,287 | 0 | 0 | 0 | 0 | 239,576 | 253,176 |
| SOUTH DAKOTA | 6,319 | 495 | 43,996 | 5,006 | 59 | 448,401 | 14 | 1 | 11,739 | 619,220 | 0 | 0 | 0 | 0 | 84,908 | 89,028 |
| TENNESSEE | 34,413 | 4,468 | 201,186 | 21,114 | 534 | 1,630,854 | 154 | 103 | 7,097 | 491,227 | 0 | 0 | 0 | 0 | 381,382 | 402,718 |
| TEXAS | 245,569 | 10,861 | 1,703,854 | 130,231 | 1,628 | 6,293,426 | 290 | 54 | 45,521 | 5,034,369 | 0 | 0 | 0 | 0 | 1,280,270 | 1,344,007 |
| UTAH | 25,585 | 1,549 | 81,333 | 7,704 | 134 | 867,527 | 37 | 15 | 1,732 | 570,563 | 0 | 0 | 0 | 0 | 138,335 | 147,996 |
| VERMONT | 6,026 | 1,567 | 19,371 | 1,941 | 56 | 183,286 | 3 | 0 | 2 | 90,124 | 0 | 0 | 0 | 0 | 50,590 | 53,011 |
| VIRGINIA | 59,738 | 7,638 | 214,515 | 21,464 | 555 | 1,756,163 | 255 | 61 | 5,782 | 324,141 | 0 | 0 | 0 | 0 | 399,919 | 418,827 |
| WASHINGTON | 44,563 | 5,036 | 183,420 | 19,233 | 379 | 1,977,883 | 109 | 25 | 7,277 | 237,197 | 0 | 0 | 0 | 0 | 385,259 | 408,890 |
| WEST VIRGINIA | 13,370 | 2,157 | 101,725 | 9,562 | 184 | 573,138 | 21 | 0 | 296 | 291,670 | 0 | 0 | 0 | 0 | 136,004 | 141,791 |
| WISCONSIN | 25,514 | 5,140 | 185,749 | 19,049 | 465 | 1,675,892 | 173 | 16 | 28,488 | 551,496 | 0 | 0 | 0 | 0 | 374,882 | 401,137 |
| WYOMING | 24,528 | 1,302 | 96,769 | 8,898 | 75 | 460,305 | 24 | 4 | 1,361 | 416,158 | 0 | 0 | 0 | 0 | 76,005 | 80,655 |
| CONTIG U.S. | 2,222,054 | 227,031 | 10,516,517 | 1,013,019 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | NR | NR | NR | NR | 17,419,117 | 18,434,372 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATE | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENT | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| ALABAMA | 1,006,722 | 80,544 | 32,894 | 236,483 | 46,247 | 33,509 | 4,793 | 2,038,501 | 666,128 | 244,481 | 2,385 | 467,679 |
| ARIZONA | 859,962 | 52,379 | 21,176 | 147,539 | 24,629 | 11,165 | 1,555 | 1,455,417 | 613,690 | 181,454 | 1,725 | 393,545 |
| ARKANSAS | 507,105 | 50,919 | 22,491 | 136,187 | 29,068 | 22,059 | 3,175 | 1,236,663 | 432,071 | 156,816 | 1,458 | 291,925 |
| CALIFORNIA | 7,471,156 | 427,333 | 138,442 | 1,469,099 | 252,663 | 178,317 | 14,724 | 12,069,466 | 3,695,925 | 1,480,936 | 7,648 | 2,530,776 |
| COLORADO | 1,176,721 | 76,141 | 27,697 | 263,790 | 37,203 | 27,914 | 3,061 | 2,049,828 | 771,809 | 260,879 | 2,383 | 514,027 |
| CONNECTICUT | 693,374 | 71,118 | 24,758 | 177,593 | 29,829 | 19,606 | 7,270 | 1,552,607 | 350,921 | 170,167 | 558 | 305,801 |
| DELAWARE | 129,732 | 13,480 | 3,834 | 37,347 | 6,127 | 4,330 | 913 | 310,588 | 80,833 | 40,411 | 321 | 58,358 |
| DIST. OF COLUM. | 166,903 | 21,747 | 702 | 17,888 | 2,925 | 385 | 105 | 290,342 | 68,775 | 82,155 | 131 | 31,552 |
| FLORIDA | 1,820,154 | 180,960 | 57,752 | 584,929 | 110,420 | 79,584 | 4,396 | 4,829,449 | 1,593,204 | 638,842 | 3,215 | 1,079,736 |
| GEORGIA | 1,036,084 | 100,261 | 47,456 | 356,264 | 75,184 | 59,129 | 5,138 | 2,911,021 | 977,157 | 324,149 | 2,947 | 689,205 |
| IDAHO | 317,959 | 26,537 | 58,708 | 104,213 | 47,989 | 37,497 | 2,177 | 1,099,704 | 970,258 | 72,573 | 768 | 627,881 |
| ILLINOIS | 2,956,057 | 196,202 | 58,175 | 578,903 | 101,539 | 66,600 | 12,444 | 5,264,179 | 1,274,312 | 598,519 | 5,548 | 950,824 |
| INDIANA | 1,614,901 | 124,201 | 44,446 | 318,845 | 54,760 | 38,703 | 11,190 | 2,800,201 | 723,904 | 328,611 | 4,005 | 557,914 |
| IOWA | 1,007,460 | 49,902 | 14,121 | 173,465 | 30,042 | 22,308 | 1,128 | 1,423,644 | 420,131 | 187,799 | 1,667 | 266,563 |
| KANSAS | 820,094 | 42,386 | 15,743 | 156,909 | 27,410 | 21,535 | 1,034 | 1,297,866 | 442,297 | 162,053 | 2,744 | 278,262 |
| KENTUCKY | 674,969 | 80,651 | 44,159 | 229,541 | 49,999 | 38,069 | 7,697 | 1,922,222 | 713,131 | 209,267 | 2,320 | 506,022 |
| LOUISIANA | 875,199 | 75,009 | 28,924 | 249,301 | 51,782 | 38,880 | 2,106 | 2,051,293 | 707,675 | 274,084 | 2,032 | 457,735 |
| MAINE | 255,361 | 48,890 | 22,732 | 62,697 | 11,528 | 7,756 | 8,059 | 578,620 | 128,215 | 63,238 | 270 | 146,146 |
| MARYLAND | 731,076 | 78,166 | 25,006 | 231,979 | 40,858 | 28,759 | 5,732 | 1,876,443 | 481,081 | 225,112 | 1,069 | 365,446 |
| MASSACHUSETTS | 1,492,659 | 101,823 | 28,620 | 315,030 | 53,674 | 34,164 | 5,826 | 2,712,644 | 650,774 | 315,720 | 1,101 | 494,895 |
| MICHIGAN | 2,550,156 | 195,759 | 66,994 | 498,735 | 91,025 | 62,038 | 16,095 | 4,412,612 | 1,064,772 | 528,352 | 2,214 | 852,649 |
| MINNESOTA | 1,195,253 | 116,841 | 44,304 | 265,582 | 46,587 | 34,259 | 10,194 | 2,326,042 | 704,926 | 309,901 | 1,813 | 521,172 |
| MISSISSIPPI | 590,849 | 48,553 | 25,704 | 139,238 | 31,935 | 23,433 | 3,460 | 1,233,233 | 449,973 | 137,790 | 1,196 | 315,291 |
| MISSOURI | 1,544,521 | 127,423 | 51,214 | 319,950 | 54,563 | 40,209 | 12,457 | 2,648,867 | 763,549 | 312,111 | 2,317 | 589,752 |
| MONTANA | 312,109 | 24,926 | 60,938 | 105,580 | 48,748 | 38,481 | 2,130 | 1,099,161 | 1,014,413 | 69,142 | 1,429 | 652,896 |
| NEBRASKA | 495,867 | 26,185 | 8,179 | 97,859 | 16,373 | 12,796 | 622 | 779,023 | 253,303 | 99,208 | 1,233 | 156,644 |
| NEVADA | 289,689 | 20,921 | 7,436 | 69,617 | 10,746 | 8,426 | 739 | 529,155 | 201,289 | 69,281 | 866 | 135,458 |
| NEW HAMPSHIRE | 204,760 | 28,591 | 13,082 | 49,786 | 9,463 | 6,301 | 4,348 | 463,192 | 96,320 | 43,030 | 127 | 104,788 |
| NEW JERSEY | 1,939,221 | 141,811 | 44,667 | 414,929 | 72,989 | 48,383 | 10,553 | 3,677,126 | 877,398 | 411,980 | 1,914 | 674,652 |
| NEW MEXICO | 435,223 | 38,941 | 11,878 | 119,001 | 14,920 | 12,096 | 2,514 | [redacted] | 307,409 | 121,078 | 1,856 | 205,836 |
| NEW YORK | 2,676,448 | 275,873 | 99,802 | 712,633 | 145,119 | 84,234 | 27,191 | 6,677,461 | 1,434,242 | 669,141 | 2,106 | 1,231,589 |
| NORTH CAROLINA | 1,137,426 | 142,068 | 59,545 | 344,569 | 66,910 | 46,880 | 14,509 | 3,064,158 | 853,601 | 334,389 | 2,193 | 686,509 |
| NORTH DAKOTA | 217,595 | 11,017 | 3,494 | 39,334 | 7,113 | 5,782 | 207 | 311,649 | 109,695 | 41,874 | 768 | 63,624 |
| OHIO | 3,176,995 | 216,618 | 75,275 | 606,783 | 104,434 | 72,080 | 17,888 | 5,365,673 | 1,329,127 | 596,260 | 6,018 | 1,028,418 |
| OKLAHOMA | 581,410 | 59,918 | 32,880 | 176,549 | 40,610 | 31,820 | 4,694 | 1,528,458 | 551,953 | 166,844 | 1,373 | 398,523 |
| OREGON | 827,998 | 67,632 | 49,331 | 189,163 | 47,653 | 35,911 | 5,660 | 1,706,956 | 833,738 | 185,157 | 2,155 | 564,325 |
| PENNSYLVANIA | 1,832,852 | 246,612 | 97,997 | 578,053 | 110,299 | 73,148 | 28,688 | 5,290,006 | 1,250,245 | 542,564 | 4,951 | 1,068,480 |
| RHODE ISLAND | 230,278 | 17,153 | 5,350 | 49,168 | 8,847 | 5,520 | 1,284 | 450,030 | 99,806 | 48,326 | 150 | 82,557 |
| SOUTH CAROLINA | 755,627 | 62,745 | 26,348 | 181,589 | 38,332 | 27,483 | 3,565 | 1,618,386 | 520,749 | 195,554 | 1,120 | 363,185 |
| SOUTH DAKOTA | 234,389 | 15,667 | 19,313 | 54,188 | 18,762 | 14,752 | 671 | 514,883 | 347,621 | 52,391 | 367 | 220,751 |
| TENNESSEE | 1,158,933 | 112,779 | 45,058 | 284,122 | 51,131 | 37,262 | 11,052 | 2,415,745 | 688,630 | 282,739 | 2,761 | 527,477 |
| TEXAS | 3,635,133 | 267,130 | 129,482 | 1,011,080 | 210,281 | 166,229 | 2,808 | 8,655,100 | 3,409,243 | 1,053,936 | 8,657 | 2,197,503 |
| UTAH | 558,071 | 34,742 | 10,484 | 117,082 | 15,967 | 11,500 | 1,328 | 921,474 | 322,649 | 123,633 | 1,875 | 208,124 |
| VERMONT | 115,042 | 21,030 | 10,246 | 28,794 | 5,587 | 3,935 | 3,521 | 262,908 | 59,980 | 26,560 | 126 | 68,327 |
| VIRGINIA | 995,901 | 120,932 | 43,696 | 311,657 | 53,758 | 38,240 | 11,822 | 2,574,230 | 670,482 | 303,341 | 2,319 | 534,561 |
| WASHINGTON | 1,333,232 | 96,904 | 56,325 | 287,745 | 62,747 | 45,735 | 6,379 | 2,470,341 | 1,043,843 | 286,590 | 1,814 | 714,198 |
| WEST VIRGINIA | 296,459 | 42,121 | 21,195 | 98,707 | 20,635 | 14,950 | 5,194 | 831,609 | 264,131 | 88,468 | 1,106 | 207,356 |
| WISCONSIN | 1,454,004 | 119,623 | 42,639 | 272,044 | 47,096 | 32,689 | 11,066 | 2,421,096 | 621,835 | 304,376 | 1,832 | 482,048 |
| WYOMING | 270,130 | 17,386 | 6,853 | 60,941 | 7,804 | 7,276 | 840 | 456,850 | 207,354 | 64,618 | 2,287 | 118,080 |
| CONTIG U.S. | 56,657,225 | 4,616,552 | 1,887,549 | 13,332,479 | 2,544,314 | 1,812,116 | 324,000 | 115,361,007 | 36,114,563 | 13,485,899 | 103,241 | 25,989,063 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

THOUSAND MOLES/YEAR

| STATE | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATIC | FORMALDEH | ACETALDEH | ALDEH | ACETONE | KETONES | ORG. ACID |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ALABAMA | 73,187 | 236,925 | 188,409 | 41,644 | 65,134 | 241,190 | 49,935 | 21,587 | 62,294 | 40,978 | 18,697 |
| ARIZONA | 58,786 | 170,040 | 86,257 | 18,351 | 48,823 | 184,575 | 36,076 | 21,823 | 60,980 | 22,358 | 7,310 |
| ARKANSAS | 40,699 | 140,351 | 118,944 | 26,430 | 37,998 | 142,012 | 30,464 | 7,377 | 24,720 | 26,201 | 12,812 |
| CALIFORNIA | 538,363 | 1,464,746 | 757,446 | 165,768 | 333,689 | 1,536,069 | 161,253 | 96,374 | 738,634 | 225,603 | 92,496 |
| COLORADO | 82,534 | 262,100 | 146,202 | 31,509 | 65,829 | 287,242 | 49,907 | 19,947 | 53,098 | 30,666 | 9,797 |
| CONNECTICUT | 56,873 | 195,865 | 235,996 | 54,915 | 34,341 | 204,283 | 11,868 | 5,351 | 63,390 | 34,650 | 16,952 |
| DELAWARE | 12,624 | 38,820 | 33,462 | 7,518 | 9,551 | 48,346 | 6,751 | 1,901 | 16,177 | 6,135 | 3,318 |
| DIST. OF COLUM. | 11,216 | 38,582 | 15,050 | 1,976 | 16,965 | 24,223 | 2,737 | 6,187 | 4,129 | 4,675 | 4,195 |
| FLORIDA | 215,701 | 586,293 | 280,358 | 56,079 | 164,885 | 634,026 | 67,244 | 79,247 | 257,016 | 83,108 | 34,446 |
| GEORGIA | 108,228 | 333,745 | 220,630 | 48,562 | 84,784 | 337,754 | 61,616 | 24,013 | 102,220 | 62,112 | 36,468 |
| IDAHO | 19,692 | 69,557 | 73,930 | 16,650 | 18,365 | 76,462 | 16,064 | 4,698 | 9,822 | 8,714 | 3,994 |
| ILLINOIS | 189,962 | 616,813 | 478,356 | 109,934 | 144,590 | 620,033 | 116,840 | 28,478 | 216,141 | 121,976 | 68,304 |
| INDIANA | 103,786 | 341,619 | 373,532 | 86,289 | 81,593 | 349,683 | 84,081 | 8,619 | 120,889 | 59,964 | 25,730 |
| IOWA | 54,330 | 168,013 | 71,183 | 15,689 | 42,367 | 193,543 | 34,862 | 4,958 | 41,246 | 26,597 | 11,935 |
| KANSAS | 49,184 | 149,083 | 64,152 | 13,936 | 45,516 | 181,550 | 57,484 | 6,750 | 43,957 | 22,839 | 11,451 |
| KENTUCKY | 64,615 | 216,362 | 253,086 | 58,143 | 53,239 | 323,730 | 48,970 | 10,406 | 71,256 | 30,271 | 13,263 |
| LOUISIANA | 75,953 | 231,081 | 115,693 | 24,726 | 64,764 | 336,037 | 42,850 | 15,006 | 85,696 | 34,144 | 17,396 |
| MAINE | 17,345 | 84,516 | 228,013 | 53,094 | 13,804 | 69,152 | 5,730 | 3,550 | 18,221 | 16,084 | 15,742 |
| MARYLAND | 71,909 | 235,749 | 207,327 | 47,333 | 49,884 | 264,929 | 22,400 | 11,536 | 60,037 | 35,531 | 18,505 |
| MASSACHUSETTS | 99,615 | 329,383 | 233,561 | 53,368 | 65,776 | 372,323 | 23,305 | 14,539 | 94,655 | 61,924 | 36,090 |
| MICHIGAN | 161,870 | 535,705 | 551,788 | 127,056 | 107,976 | 494,381 | 46,636 | 15,765 | 168,924 | 92,402 | 37,989 |
| MINNESOTA | 87,214 | 294,635 | 336,137 | 76,510 | 65,519 | 289,784 | 38,090 | 8,832 | 81,067 | 43,739 | 23,275 |
| MISSISSIPPI | 39,476 | 134,547 | 126,776 | 28,350 | 35,455 | 146,515 | 24,988 | 11,715 | 33,875 | 26,362 | 8,768 |
| MISSOURI | 94,903 | 336,690 | 405,520 | 93,226 | 71,950 | 334,883 | 48,522 | 14,962 | 74,863 | 52,596 | 27,781 |
| MONTANA | 19,391 | 67,274 | 71,609 | 16,168 | 21,230 | 83,576 | 29,867 | 3,776 | 10,447 | 6,713 | 2,136 |
| NEBRASKA | 30,882 | 91,700 | 39,381 | 8,608 | 25,472 | 115,963 | 25,764 | 5,019 | 23,413 | 12,119 | 4,782 |
| NEVADA | 22,525 | 66,718 | 38,820 | 7,712 | 22,473 | 73,645 | 18,123 | 12,298 | 18,113 | 6,611 | 1,709 |
| NEW HAMPSHIRE | 14,065 | 59,412 | 126,966 | 29,664 | 9,084 | 52,060 | 2,705 | 2,241 | 13,860 | 11,011 | 6,537 |
| NEW JERSEY | 161,042 | 432,726 | 378,940 | 87,453 | 85,305 | 527,852 | 41,937 | 12,246 | 256,135 | 87,902 | 51,359 |
| NEW MEXICO | 36,781 | 119,781 | 95,622 | 21,038 | 35,154 | 138,049 | 38,933 | 9,236 | 26,463 | 11,532 | 2,586 |
| NEW YORK | 216,729 | 787,545 | 897,992 | 211,044 | 139,868 | 814,902 | 44,484 | 30,349 | 216,515 | 163,604 | 102,347 |
| NORTH CAROLINA | 106,686 | 371,656 | 473,576 | 108,087 | 81,567 | 348,763 | 46,186 | 24,748 | 118,195 | 76,469 | 28,779 |
| NORTH DAKOTA | 11,566 | 34,850 | 15,176 | 3,075 | 13,104 | 54,252 | 16,039 | 4,298 | 6,750 | 3,995 | 1,223 |
| OHIO | 197,542 | 639,555 | 619,920 | 144,306 | 141,702 | 642,340 | 126,469 | 17,696 | 220,738 | 116,857 | 57,730 |
| OKLAHOMA | 51,617 | 166,509 | 166,045 | 37,590 | 42,170 | 162,683 | 28,889 | 12,180 | 51,547 | 24,422 | 9,410 |
| OREGON | 53,501 | 180,901 | 190,838 | 43,421 | 46,300 | 192,389 | 45,198 | 7,404 | 50,721 | 29,406 | 15,287 |
| PENNSYLVANIA | 177,140 | 639,918 | 899,765 | 210,314 | 131,788 | 664,008 | 104,468 | 23,263 | 205,879 | 121,868 | 68,444 |
| RHODE ISLAND | 17,058 | 52,991 | 46,651 | 10,812 | 9,855 | 56,079 | 3,210 | 1,921 | 23,115 | 10,351 | 4,633 |
| SOUTH CAROLINA | 59,115 | 183,384 | 140,002 | 31,311 | 44,049 | 180,171 | 23,587 | 9,841 | 64,019 | 33,618 | 17,951 |
| SOUTH DAKOTA | 13,035 | 42,325 | 28,705 | 6,169 | 12,021 | 49,077 | 7,671 | 3,084 | 6,396 | 4,614 | 1,484 |
| TENNESSEE | 89,327 | 300,191 | 359,068 | 82,608 | 68,109 | 302,734 | 58,225 | 9,964 | 108,206 | 51,546 | 29,184 |
| TEXAS | 331,224 | 929,757 | 326,379 | 64,336 | 264,999 | 1,181,458 | 183,323 | 82,981 | 432,597 | 147,028 | 57,735 |
| UTAH | 37,864 | 118,725 | 63,807 | 13,991 | 33,696 | 138,278 | 39,184 | 5,673 | 26,468 | 14,402 | 3,815 |
| VERMONT | 8,290 | 36,728 | 99,704 | 23,279 | 5,764 | 32,114 | 2,672 | 1,263 | 11,020 | 5,649 | 3,819 |
| VIRGINIA | 96,667 | 329,609 | 387,017 | 89,141 | 70,463 | 345,554 | 48,776 | 11,741 | 97,893 | 52,788 | 23,202 |
| WASHINGTON | 82,147 | 278,087 | 235,926 | 52,819 | 65,171 | 324,739 | 37,994 | 16,447 | 60,091 | 42,589 | 22,176 |
| WEST VIRGINIA | 25,684 | 100,400 | 158,901 | 37,125 | 22,982 | 104,891 | 23,116 | 3,345 | 12,591 | 12,410 | 4,424 |
| WISCONSIN | 84,981 | 309,194 | 360,169 | 82,794 | 64,283 | 290,730 | 38,561 | 7,886 | 77,557 | 64,533 | 50,073 |
| WYOMING | 17,298 | 57,270 | 35,236 | 7,728 | 24,215 | 92,403 | 47,772 | 1,651 | 4,356 | 4,484 | 635 |
| CONTIG U.S. | 4,269,998 | 13,608,223 | 11,858,021 | 2,687,709 | 3,203,622 | 14,661,391 | 2,171,814 | 764,170 | 4,646,372 | 2,282,149 | 1,128,174 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA SOURCES

| | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| REGION 1 | 134,520 | 23,562 | 404,880 | 39,761 | 1,170 | 4,625,738 | 231 | 4 | 2,470 | 606,816 | 0 | 0 | 0 | 0 | 1,020,013 | 1,080,788 |
| REGION 2 | 186,507 | 33,755 | 668,495 | 65,560 | 1,963 | 6,855,228 | 193 | 31 | 14,026 | 860,832 | 0 | 0 | 0 | 0 | 1,662,642 | 1,755,258 |
| REGION 3 | 260,590 | 35,271 | 1,053,352 | 104,110 | 2,528 | 8,469,592 | 1,069 | 151 | 27,558 | 2,162,310 | 0 | 0 | 0 | 0 | 1,900,234 | 1,987,708 |
| REGION 4 | 423,203 | 38,015 | 1,880,752 | 189,820 | 4,590 | 15,103,303 | 1,119 | 715 | 72,957 | 4,340,465 | 0 | 0 | 0 | 0 | 3,363,893 | 3,529,412 |
| REGION 5 | 424,252 | 46,450 | 2,029,969 | 204,479 | 4,884 | 17,103,112 | 2,325 | 958 | 134,448 | 4,236,611 | 0 | 0 | 0 | 0 | 3,728,034 | 3,982,016 |
| REGION 6 | 499,063 | 28,184 | 2,640,196 | 214,604 | 3,141 | 11,811,499 | 495 | 194 | 85,962 | 9,084,482 | 0 | 0 | 0 | 0 | 2,364,260 | 2,482,493 |
| REGION 7 | 137,696 | 9,203 | 785,558 | 76,068 | 1,335 | 4,787,301 | 339 | 35 | 156,830 | 6,498,978 | 0 | 0 | 0 | 0 | 1,011,400 | 1,085,758 |
| REGION 8 | 127,157 | 8,339 | 544,200 | 55,745 | 774 | 5,658,682 | 195 | 34 | 43,688 | 4,960,088 | 0 | 0 | 0 | 0 | 945,319 | 998,377 |
| REGION 9 | 156,195 | 15,235 | 1,145,121 | 118,154 | 2,821 | 10,923,825 | 586 | 32 | 34,976 | 3,105,694 | 0 | 0 | 0 | 0 | 2,250,925 | 2,415,267 |
| REGION 10 | 100,212 | 12,245 | 439,953 | 48,361 | 831 | 4,842,549 | 320 | 97 | 20,282 | 2,396,847 | 0 | 0 | 0 | 0 | 954,569 | 1,003,339 |
| CONTIG U.S. | 2,449,395 | 250,259 | 11,592,476 | 1,116,662 | 24,037 | 90,180,829 | 6,872 | 2,251 | 593,197 | 38,253,123 | NR | NR | NR | NR | 19,201,289 | 20,320,417 |

| | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| REGION 1 | 122,034 | 21,375 | 367,301 | 36,071 | 1,061 | 4,196,399 | 210 | 4 | 2,241 | 550,494 | 0 | 0 | 0 | 0 | 925,340 | 980,475 |
| REGION 2 | 169,196 | 30,622 | 606,449 | 59,475 | 1,781 | 6,218,958 | 175 | 28 | 12,725 | 780,934 | 0 | 0 | 0 | 0 | 1,508,324 | 1,592,344 |
| REGION 3 | 236,403 | 31,997 | 955,585 | 94,447 | 2,293 | 7,683,485 | 970 | 137 | 25,000 | 1,961,615 | 0 | 0 | 0 | 0 | 1,723,864 | 1,803,219 |
| REGION 4 | 383,923 | 34,487 | 1,706,190 | 172,202 | 4,164 | 13,701,486 | 1,015 | 649 | 66,185 | 3,937,604 | 0 | 0 | 0 | 0 | 3,051,672 | 3,201,828 |
| REGION 5 | 384,875 | 42,139 | 1,841,557 | 185,500 | 4,431 | 15,515,682 | 2,109 | 869 | 121,969 | 3,843,389 | 0 | 0 | 0 | 0 | 3,382,015 | 3,612,424 |
| REGION 6 | 452,762 | 25,568 | 2,395,145 | 194,685 | 2,849 | 10,715,212 | 449 | 176 | 77,984 | 8,241,304 | 0 | 0 | 0 | 0 | 2,144,821 | 2,252,080 |
| REGION 7 | 124,916 | 8,349 | 712,647 | 69,008 | 1,211 | 4,342,966 | 308 | 32 | 142,274 | 5,895,774 | 0 | 0 | 0 | 0 | 917,527 | 984,983 |
| REGION 8 | 115,355 | 7,565 | 493,690 | 50,571 | 702 | 5,133,470 | 177 | 31 | 39,633 | 4,499,716 | 0 | 0 | 0 | 0 | 857,579 | 905,713 |
| REGION 9 | 141,698 | 13,821 | 1,038,836 | 107,188 | 2,559 | 9,909,927 | 532 | 29 | 31,730 | 2,817,438 | 0 | 0 | 0 | 0 | 2,042,005 | 2,191,093 |
| REGION 10 | 90,911 | 11,108 | 399,118 | 43,873 | 754 | 4,393,087 | 290 | 88 | 18,400 | 2,174,383 | 0 | 0 | 0 | 0 | 865,970 | 910,214 |
| CONTIG U.S. | 2,222,054 | 227,031 | 10,516,517 | 1,013,019 | 21,806 | 81,810,673 | 6,234 | 2,042 | 538,140 | 34,702,650 | NR | NR | NR | NR | 17,419,117 | 18,434,372 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENT | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| REGION 1 | 2,991,475 | 288,604 | 104,788 | 683,067 | 118,929 | 77,282 | 30,308 | 6,020,002 | 1,386,017 | 667,040 | 2,332 | 1,202,514 |
| REGION 2 | 4,615,669 | 417,684 | 144,468 | 1,127,562 | 218,108 | 132,616 | 37,743 | 10,354,587 | 2,311,640 | 1,081,121 | 4,020 | 1,906,241 |
| REGION 3 | 4,152,923 | 523,059 | 192,430 | 1,275,631 | 234,601 | 159,812 | 52,453 | 11,173,216 | 2,815,546 | 1,282,050 | 9,897 | 2,265,753 |
| REGION 4 | 8,180,765 | 808,562 | 338,917 | 2,356,735 | 470,159 | 345,350 | 54,609 | 20,032,714 | 6,462,573 | 2,367,210 | 18,138 | 4,635,102 |
| REGION 5 | 12,947,366 | 969,243 | 331,834 | 2,540,891 | 445,442 | 306,369 | 78,878 | 22,589,803 | 5,718,876 | 2,666,020 | 21,432 | 4,393,024 |
| REGION 6 | 6,034,071 | 491,917 | 225,657 | 1,692,118 | 346,662 | 271,083 | 15,298 | 14,357,402 | 5,408,350 | 1,772,759 | 15,376 | 3,551,523 |
| REGION 7 | 3,867,942 | 245,896 | 89,256 | 748,183 | 128,388 | 96,848 | 15,241 | 6,149,400 | 1,879,279 | 761,171 | 7,961 | 1,291,221 |
| REGION 8 | 2,767,015 | 179,879 | 128,779 | 640,915 | 135,597 | 105,704 | 8,237 | 5,352,845 | 2,773,540 | 612,537 | 9,109 | 1,777,501 |
| REGION 9 | 8,620,807 | 500,633 | 167,054 | 1,686,255 | 288,039 | 197,908 | 17,017 | 14,054,038 | 4,510,904 | 1,731,671 | 10,240 | 3,059,779 |
| REGION 10 | 2,479,190 | 191,072 | 164,365 | 581,121 | 158,389 | 119,143 | 14,216 | 5,277,001 | 2,847,838 | 544,320 | 4,737 | 1,906,404 |
| CONTIG U.S. | 56,657,225 | 4,616,552 | 1,887,549 | 13,332,479 | 2,544,314 | 1,812,116 | 324,000 | 115,361,007 | 36,114,563 | 13,485,899 | 103,241 | 25,989,063 |

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATIC | FORMALDEH | ACETALDEH | ALDEH | ACETONE | KETONES | ORG. ACID |
| REGION 1 | 213,247 | 758,896 | 970,891 | 225,132 | 138,625 | 786,012 | 49,479 | 28,865 | 224,261 | 139,669 | 83,774 |
| REGION 2 | 357,770 | 1,220,271 | 1,276,932 | 298,497 | 225,173 | 1,342,754 | 86,421 | 42,595 | 472,650 | 251,505 | 153,706 |
| REGION 3 | 395,218 | 1,383,077 | 1,701,521 | 393,408 | 301,633 | 1,451,952 | 208,246 | 57,973 | 396,705 | 233,407 | 122,087 |
| REGION 4 | 756,136 | 2,363,102 | 2,041,904 | 454,784 | 597,223 | 2,514,860 | 380,752 | 191,521 | 817,082 | 402,465 | 187,556 |
| REGION 5 | 825,356 | 2,737,321 | 2,719,902 | 626,890 | 605,661 | 2,686,951 | 450,676 | 87,276 | 885,316 | 497,471 | 263,101 |
| REGION 6 | 536,274 | 1,587,478 | 822,683 | 174,120 | 445,085 | 1,960,240 | 324,460 | 126,780 | 621,023 | 243,326 | 99,939 |
| REGION 7 | 229,299 | 745,486 | 580,236 | 131,459 | 185,306 | 825,919 | 166,632 | 31,689 | 183,459 | 114,151 | 55,949 |
| REGION 8 | 181,687 | 582,543 | 360,735 | 78,640 | 170,096 | 704,827 | 190,439 | 38,428 | 107,515 | 64,874 | 19,091 |
| REGION 9 | 619,673 | 1,701,504 | 882,523 | 191,830 | 404,985 | 1,794,288 | 215,452 | 130,495 | 817,727 | 254,572 | 101,515 |
| REGION 10 | 155,339 | 528,545 | 500,695 | 112,950 | 129,835 | 593,589 | 99,256 | 28,549 | 120,635 | 80,709 | 41,457 |
| CONTIG U.S. | 4,269,998 | 13,608,223 | 11,858,021 | 2,687,709 | 3,203,622 | 14,661,391 | 2,171,814 | 764,170 | 4,646,372 | 2,282,149 | 1,128,174 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | | | | | | |
| 101002 | 15,793,408 | 338,017 | 4,829,659 | 149,371 | 30 | 160,708 | 474,292 | 57,413 | 133 | 521,611 | 8,450 | 8,920 | 4,277 | 2,295 | 25,827 | 26,382 |
| 101003 | 279,553 | 36,021 | 195,246 | 6,039 | 5 | 13,569 | 158 | 158 | 7 | 52,263 | 847 | 894 | 429 | 230 | 2,022 | 2,065 |
| 101004 | 1,385,537 | 41,110 | 385,608 | 7,870 | 0 | 39,829 | 0 | 0 | 0 | 54,266 | 0 | 0 | 0 | 0 | 12,677 | 14,244 |
| 101005 | 8,359 | 1,035 | 5,142 | 105 | 0 | 1,105 | 0 | 0 | 0 | 94 | 0 | 0 | 0 | 0 | 45 | 45 |
| 101006 | 968 | 0 | 707,302 | 37,226 | 0 | 68,311 | 0 | 0 | 0 | 4,620 | 0 | 0 | 0 | 0 | 1,362 | 3,096 |
| 102001 | 3,590 | 277 | 1,915 | 93 | 0 | 116 | 374 | 16 | 0 | 252 | 4 | 4 | 2 | 1 | 10 | 18 |
| 102002 | 1,187,896 | 43,699 | 379,322 | 11,732 | 28 | 35,225 | 31,492 | 12,210 | 10 | 347,169 | 5,623 | 5,935 | 2,846 | 1,527 | 6,455 | 6,594 |
| 102003 | 52,631 | 3,039 | 11,450 | 354 | 0 | 3,691 | 258 | 44 | 1 | 24,348 | 394 | 416 | 200 | 107 | 132 | 135 |
| 102004 | 1,045,988 | 22,414 | 275,820 | 5,629 | 0 | 53,251 | 0 | 0 | 0 | 79,592 | 0 | 0 | 0 | 0 | 50,266 | 56,481 |
| 102005 | 95,558 | 4,104 | 38,47[illegible] | 785 | 0 | 7,814 | 0 | 0 | 0 | 6,362 | 0 | 0 | 0 | 0 | 16,029 | 16,029 |
| 102006 | 41,503 | 204 | 489,234 | 25,749 | 0 | 107,103 | 0 | 0 | 0 | 17,099 | 0 | 0 | 0 | 0 | 12,809 | 29,109 |
| 102007 | 301,546 | 1,114 | 97,170 | 4,789 | 0 | 14,157 | 0 | 0 | 0 | 11,388 | 0 | 0 | 0 | 0 | 7,567 | 11,254 |
| 102008 | 4,471 | 16 | 1,170 | 36 | 0 | 19,147 | 0 | 0 | 0 | 2,060 | 0 | 0 | 0 | 0 | 296 | 302 |
| 102009 | 15,464 | 70,815 | 94,354 | 2,918 | 0 | 103,091 | 0 | 0 | 0 | 91,961 | 46 | 37 | 37 | 1,793 | 62,442 | 63,785 |
| 102010 | 54 | 0 | 169 | 9 | 0 | 23 | 0 | 0 | 0 | 58 | 0 | 0 | 0 | 0 | 10 | 22 |
| 102011 | 616 | 0 | 1,791 | 94 | 0 | 1,443 | 0 | 0 | 0 | 8,872 | 0 | 0 | 0 | 0 | 4,053 | 4,053 |
| 102012 | 3,448 | 0 | 1,804 | 56 | 0 | 15 | 0 | 0 | 0 | 1,813 | 0 | 0 | 0 | 0 | 22 | 22 |
| 102013 | 17,505 | 0 | 2,751 | 56 | 366 | 114 | 0 | 0 | 0 | 650 | 0 | 0 | 0 | 0 | 64 | 64 |
| 103001 | 309 | 17 | 107 | 3 | 0 | 4 | 21 | 0 | 0 | 403 | 7 | 7 | 3 | 2 | 3 | 3 |
| 103002 | 83,411 | 3,087 | 18,525 | 573 | 1 | 4,435 | 1,730 | 185 | 1 | 29,094 | 471 | 498 | 239 | 128 | 950 | 970 |
| 103003 | 1,804 | 119 | 329 | 10 | 0 | 341 | 18 | 1 | 0 | 2,060 | 33 | 35 | 17 | 9 | 29 | 30 |
| 103004 | 81,373 | 10,099 | 31,843 | 650 | 0 | 2,352 | 0 | 0 | 0 | 33,884 | 0 | 0 | 0 | 0 | 1,353 | 1,521 |
| 103005 | 20,061 | 990 | 3,421 | 70 | 0 | 1,010 | 0 | 0 | 0 | 10,236 | 0 | 0 | 0 | 0 | 877 | 877 |
| 103006 | 619 | 0 | 37,561 | 1,977 | 0 | 4,936 | 0 | 0 | 0 | 1,300 | 0 | 0 | 0 | 0 | 1,174 | 2,668 |
| 103009 | 265 | 1,418 | 2,657 | 82 | 0 | 1,711 | 0 | 0 | 0 | 1,059 | 1 | 0 | 0 | 21 | 926 | 946 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103013 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 6 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 31,800 | 165 | 10,568 | 527 | 0 | 43,506 | 0 | 0 | 0 | 3,102 | 0 | 0 | 0 | 0 | 3,470 | 5,210 |
| 105002 | 955 | 615 | 889 | 18 | 0 | 222 | 0 | 0 | 0 | 131 | 0 | 0 | 0 | 0 | 218 | 218 |
| 199999 | 8,675 | 0 | 2,392 | 126 | 0 | 498 | 0 | 0 | 0 | 1,219 | 0 | 0 | 0 | 0 | 1,230 | 1,230 |
| 201001 | 9,741 | 17 | 28,270 | 3,141 | 0 | 6,994 | 0 | 0 | 0 | 2,187 | 0 | 0 | 0 | 0 | 1,984 | 2,318 |
| 201002 | 26 | 0 | 76,836 | 4,904 | 0 | 16,567 | 0 | 0 | 0 | 1,420 | 0 | 0 | 0 | 0 | 2,018 | 7,627 |
| 202001 | 3,215 | 13 | 12,216 | 1,357 | 0 | 3,656 | 0 | 0 | 0 | 817 | 0 | 0 | 0 | 0 | 1,517 | 1,772 |
| 202002 | 4,917 | 0 | 604,240 | 38,568 | 0 | 112,937 | 0 | 0 | 0 | 3,158 | 0 | 0 | 0 | 0 | 12,183 | 83,323 |
| 202003 | 9 | 0 | 149 | 17 | 0 | 6,440 | 0 | 0 | 0 | 187 | 0 | 0 | 0 | 0 | 274 | 320 |
| 202004 | 10 | 0 | 632 | 70 | 0 | 183 | 0 | 0 | 0 | 47 | 0 | 0 | 0 | 0 | 17 | 20 |
| 203001 | 10 | 0 | 455 | 51 | 0 | 80 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 19 | 22 |
| 203002 | 3 | 0 | 769 | 49 | 0 | 1,366 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 10 | 73 |
| 204001 | 195 | 0 | 637 | 41 | 0 | 474 | 0 | 0 | 0 | 156 | 0 | 0 | 0 | 0 | 76 | 545 |
| 204004 | 58 | 0 | 796 | 88 | 0 | 1,200 | 0 | 0 | 0 | 210 | 0 | 0 | 0 | 0 | 370 | 432 |
| 299999 | 0 | 0 | 508 | 27 | 0 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 301001 | 1,465 | 0 | 4,355 | 229 | 0 | 28,485 | 0 | 0 | 0 | 97 | 0 | 0 | 0 | 0 | 9,119 | 9,119 |
| 301003 | 1,415 | 4 | 6,619 | 348 | 0 | 62,182 | 0 | 0 | 3,108 | 518 | 0 | 0 | 0 | 0 | 15,468 | 15,468 |
| 301005 | 19,919 | 0 | 1,199 | 63 | 0 | 1,841,589 | 0 | 0 | 0 | 2,848 | 0 | 0 | 0 | 0 | 189,542 | 189,542 |
| 301006 | 1,820 | 0 | 19,551 | 1,029 | 0 | 70,711 | 0 | 0 | 0 | 76,161 | 0 | 0 | 0 | 0 | 94,612 | 94,612 |
| 301007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 727 | 733 |
| 301008 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 54 | 0 | 0 | 0 | 0 | 370 | 370 |
| 301009 | 751 | 0 | 112 | 6 | 0 | 23 | 0 | 0 | 0 | 1,034 | 0 | 0 | 0 | 0 | 599 | 599 |
| 301010 | 80 | 0 | 2,245 | 118 | 0 | 0 | 0 | 0 | 0 | 998 | 0 | 0 | 0 | 0 | 714 | 714 |
| 301011 | 0 | 0 | 0 | 0 | 0 | 160 | 731 | 0 | 0 | 51 | 0 | 0 | 0 | 0 | 42 | 96 |
| 301012 | 125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,020 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301013 | 7,325 | 0 | 45,534 | 2,397 | 0 | 5,558 | 0 | 0 | 0 | 1,331 | 0 | 0 | 0 | 0 | 1,491 | 1,491 |
| 301014 | 4,558 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,862 | 0 | 0 | 0 | 0 | 16,010 | 16,010 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | | | | | | | | TONS/YEAR | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 5,955 | 5,955 |
| 301016 | 11,975 | 0 | 0 | 0 | 0 | 72 | 0 | 1,650 | 0 | 1,067 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 1 | 0 | 80 | 4 | 0 | 0 | 0 | 0 | 0 | 376 | 0 | 0 | 0 | 0 | 11 | 11 |
| 301018 | 1,808 | 0 | 289 | 15 | 0 | 223 | 0 | 0 | 0 | 58,550 | 0 | 0 | 0 | 0 | 105,497 | 106,322 |
| 301019 | 366 | 5 | 0 | 0 | 0 | 22,015 | 0 | 0 | 0 | 7,193 | 0 | 0 | 0 | 0 | 567 | 2,042 |
| 301020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 1,769 | 1,769 |
| 301021 | 243 | 0 | 448 | 24 | 0 | 4,972 | 0 | 0 | 0 | 4,872 | 0 | 0 | 0 | 0 | 218 | 218 |
| 301022 | 7,705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 360 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 288,797 | 1,430 | 358 | 19 | 0 | 1,215 | 0 | 0 | 0 | 15,830 | 0 | 0 | 0 | 0 | 61 | 63 |
| 301024 | 7,466 | 0 | 2 | 0 | 0 | 4,165 | 0 | 0 | 0 | 1,206 | 0 | 0 | 0 | 0 | 17,219 | 17,219 |
| 301025 | 604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 | 21,830 | 22,219 |
| 301026 | 5,054 | 0 | 282 | 15 | 0 | 19,004 | 0 | 0 | 0 | 1,440 | 0 | 0 | 0 | 0 | 90,128 | 90,128 |
| 301027 | 1,002 | 0 | 1,847 | 97 | 0 | 8,122 | 0 | 0 | 224,793 | 11,234 | 0 | 0 | 0 | 0 | 45 | 45 |
| 301028 | 1,049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,410 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 5,976 | 0 | 14 | 1 | 0 | 4 | 0 | 29,824 | 0 | 616 | 0 | 0 | 0 | 0 | 3 | 3 |
| 301030 | 8,681 | 0 | 7,758 | 408 | 0 | 4 | 0 | 1,933 | 766 | 8,205 | 0 | 0 | 0 | 0 | 32 | 32 |
| 301031 | 0 | 0 | 0 | 0 | 0 | 35,858 | 0 | 0 | 0 | 289 | 0 | 0 | 0 | 0 | 58,475 | 58,475 |
| 301032 | 251,892 | 3,078 | 640 | 34 | 0 | 2,343 | 0 | 0 | 0 | 982 | 0 | 0 | 0 | 0 | 1,404 | 1,404 |
| 301033 | 790 | 0 | 643 | 34 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 2,739 | 2,739 |
| 301034 | 1,084 | 0 | 3,425 | 180 | 0 | 113 | 0 | 0 | 0 | 415 | 0 | 0 | 0 | 0 | 2,677 | 2,711 |
| 301035 | 11,244 | 4 | 1,361 | 72 | 0 | 27,421 | 0 | 0 | 0 | 1,645 | 0 | 0 | 0 | 0 | 5 | 6 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,807 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301041 | 1,909 | 6 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 334 | 0 | 0 | 0 | 0 | 3,256 | 3,314 |
| 301042 | 0 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 0 | 1,929 | 1,929 |
| 301050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,189 | 1,210 |
| 301060 | 226 | 0 | 11 | 1 | 0 | 174 | 0 | 0 | 0 | 3,947 | 0 | 0 | 0 | 0 | 1,509 | 1,535 |
| 301091 | 38 | 0 | 42 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 797 | 797 |
| 301100 | 0 | 0 | 0 | 0 | 0 | 13,238 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248 | 248 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301120 | 0 | 0 | 8 | 0 | 0 | 2 | 0 | 0 | 0 | 378 | 0 | 0 | 0 | 0 | 1,349 | 1,349 |
| 301125 | 250 | 0 | 50 | 3 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 2,107 | 2,107 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 151 | 250 |
| 301132 | 69 | 0 | 636 | 33 | 0 | 175 | 0 | 0 | 0 | 271 | 0 | 0 | 0 | 0 | 4,572 | 4,648 |
| 301137 | 480 | 0 | 7 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 324 | 330 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 130 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 137 | 137 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 380 | 380 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,662 | 1,692 |
| 301181 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 99 |
| 301197 | 2,964 | 0 | 351 | 18 | 0 | 1,462 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 23,003 | 23,003 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,020 | 1,020 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 520 | 520 |
| 301250 | 1 | 0 | 2,533 | 133 | 0 | 3,964 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1,371 | 1,371 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 999 | 999 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 | 106 |
| 301254 | 24 | 0 | 214 | 11 | 0 | 5,927 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,354 | 8,354 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 7,406 | 7,449 |
| 301820 | 243 | 0 | 0 | 0 | 0 | 67 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 1,855 | 1,855 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301888 | 247 | 0 | 5 | 0 | 0 | 36 | 0 | 0 | 0 | 12,570 | 0 | 0 | 0 | 0 | 467 | 475 |
| 301900 | 182,612 | 0 | 485 | 26 | 0 | 24 | 0 | 0 | 0 | 411 | 0 | 0 | 0 | 0 | 651 | 651 |
| 301999 | 57,725 | 0 | 31,126 | 1,638 | 0 | 241,373 | 0 | 0 | 0 | 52,092 | 0 | 0 | 0 | 0 | 211,348 | 211,348 |
| 302001 | 1 | 0 | 187 | 10 | 0 | 15 | 0 | 0 | 0 | 18,573 | 0 | 0 | 0 | 0 | 4 | 4 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 302002 | 0 | 0 | 59 | 3 | 0 | 48 | 0 | 0 | 0 | 1,977 | 0 | 0 | 0 | 0 | 48 | 48 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 618 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302005 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 45,098 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302006 | 6 | 0 | 84 | 4 | 0 | 53 | 0 | 0 | 0 | 200,334 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302007 | 198 | 0 | 26 | 1 | 0 | 3 | 0 | 0 | 0 | 43,120 | 0 | 0 | 0 | 0 | 761 | 7,045 |
| 302008 | 512 | 0 | 5 | 0 | 0 | 17 | 0 | 0 | 0 | 9,680 | 0 | 0 | 0 | 0 | 2 | 2 |
| 302009 | 1,264 | 0 | 121 | 6 | 0 | 14 | 0 | 0 | 0 | 1,615 | 0 | 0 | 0 | 0 | 405 | 2,171 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 614 | 0 | 0 | 0 | 0 | 24,034 | 24,034 |
| 302012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 26 | 336 |
| 302013 | 0 | 0 | 1 | 0 | 0 | 72 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 840 | 858 |
| 302014 | 106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,586 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302015 | 1,674 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 1,684 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302016 | 699 | 0 | 337 | 18 | 0 | 25 | 0 | 0 | 0 | 7,834 | 0 | 0 | 0 | 0 | 7 | 7 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 535 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 237 |
| 302019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 | 0 | 0 | 0 | 0 | 780 | 10,183 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 762 | 2,550 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 147 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 487 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302032 | 1,196 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 4 | 57 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,913 | 1,913 |
| 302888 | 0 | 0 | 2 | 0 | 0 | 26 | 0 | 0 | 0 | 382 | 0 | 0 | 0 | 0 | 15 | 162 |
| 302999 | 1,241 | 0 | 405 | 21 | 0 | 16 | 0 | 0 | 0 | 5,116 | 0 | 0 | 0 | 0 | 371 | 4,840 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,698 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 87,605 | 561 | 124,733 | 6,565 | 0 | 678,962 | 0 | 9,749 | 0 | 46,980 | 0 | 0 | 0 | 0 | 15,458 | 33,098 |
| 303002 | 1,403 | 0 | 935 | 49 | 0 | 163 | 0 | 0 | 0 | 21,303 | 0 | 0 | 0 | 0 | 9 | 9 |
| 303003 | 75,716 | 12,742 | 4,057 | 214 | 0 | 37,997 | 0 | 0 | 7,373 | 58,581 | 0 | 0 | 0 | 0 | 32,629 | 69,863 |
| 303004 | 30 | 0 | 4 | 0 | 0 | 11 | 0 | 0 | 0 | 2,168 | 0 | 0 | 0 | 0 | 40 | 86 |
| 303005 | 1,099,046 | 35,393 | 986 | 52 | 160 | 7,211 | 0 | 0 | 0 | 20,562 | 0 | 0 | 0 | 0 | 17 | 20 |
| 303006 | 387 | 0 | 105 | 6 | 59 | 282 | 0 | 0 | 0 | 28,206 | 299 | 409 | 381 | 0 | 19 | 22 |
| 303007 | 92 | 0 | 0 | 0 | 0 | 363 | 0 | 0 | 0 | 1,230 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 63,405 | 738 | 16,486 | 1,189 | 1,246 | 1,115,635 | 0 | 0 | 0 | 163,355 | 6,502 | 2,712 | 2,842 | 9,197 | 4,327 | 17,794 |
| 303009 | 53,762 | 0 | 27,603 | 2,368 | 1,679 | 369,322 | 0 | 0 | 0 | 64,061 | 0 | 0 | 0 | 0 | 4,270 | 4,451 |
| 303010 | 57,902 | 1,532 | 3 | 0 | 887 | 43,930 | 0 | 0 | 0 | 7,129 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303011 | 1,939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,969 | 0 | 0 | 0 | 0 | 73 | 73 |
| 303012 | 0 | 0 | 156 | 8 | 0 | 4,993 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 2,203 | 0 | 196 | 10 | 0 | 5,941 | 0 | 0 | 0 | 2,636 | 0 | 0 | 0 | 0 | 427 | 427 |
| 303023 | 10,609 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68,416 | 335 | 164 | 0 | 0 | 0 | 0 |
| 303030 | 37,793 | 11,227 | 95 | 5 | 385 | 17 | 0 | 0 | 0 | 8,857 | 0 | 0 | 0 | 0 | 3 | 6 |
| 303888 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1,849 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 2,758 | 0 | 102 | 18 | 0 | 552 | 0 | 0 | 0 | 1,052 | 0 | 0 | 0 | 0 | 84 | 205 |
| 304001 | 1,086 | 0 | 8,409 | 443 | 0 | 983 | 0 | 0 | 0 | 11,579 | 0 | 0 | 0 | 0 | 3,652 | 5,769 |
| 304002 | 6 | 0 | 885 | 47 | 228 | 3,732 | 0 | 0 | 0 | 4,850 | 0 | 0 | 0 | 0 | 177 | 280 |
| 304003 | 7,305 | 9 | 1,085 | 191 | 497 | 491,060 | 0 | 0 | 0 | 36,836 | 0 | 0 | 0 | 0 | 1,822 | 4,468 |
| 304004 | 26,595 | 98 | 340 | 18 | 276 | 160 | 0 | 0 | 0 | 8,690 | 0 | 0 | 0 | 0 | 3,292 | 5,201 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304006 | 32 | 0 | 3 | 0 | 0 | 6,390 | 0 | 0 | 0 | 149 | 35 | 21 | 0 | 0 | 0 | 0 |
| 304007 | 6,809 | 0 | 3,171 | 560 | 0 | 5,332 | 0 | 0 | 0 | 6,419 | 0 | 0 | 0 | 0 | 104 | 254 |
| 304008 | 1,714 | 0 | 585 | 31 | 0 | 17 | 0 | 0 | 0 | 3,046 | 0 | 0 | 0 | 0 | 4 | 6 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 767 | 0 | 31 | 2 | 0 | 3 | 0 | 0 | 0 | 786 | 0 | 0 | 0 | 0 | 166 | 166 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

TONS/YEAR

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 304022 | 1 | 0 | 841 | 44 | 0 | 27 | 0 | 0 | 0 | 128 | 0 | 0 | 0 | 0 | 206 | [illegible]25 |
| 304034 | 67 | 0 | 162 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 0 | 0 | 0 | 0 | 0 | 554 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 477 | 753 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 1 | 1 |
| 304999 | 2,677 | 0 | 259 | 14 | 0 | 252 | 0 | 0 | 0 | 3,190 | 0 | 0 | 0 | 0 | 563 | 890 |
| 305001 | 10 | 0 | 3 | 0 | 0 | 2,330 | 0 | 0 | 0 | 4,647 | 0 | 0 | 0 | 0 | 2,875 | 2,881 |
| 305002 | 42,343 | 0 | 9,120 | 480 | 0 | 5,992 | 0 | 0 | 0 | 73,020 | 0 | 0 | 0 | 0 | 619 | 1,408 |
| 305003 | 6,288 | 26 | 3,526 | 149 | 0 | 1,981 | 0 | 0 | 0 | 128,969 | 0 | 0 | 0 | 0 | 819 | 1,708 |
| 305004 | 166 | 1 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 474 | 0 | 0 | 0 | 0 | 306 | 306 |
| 305005 | 829 | 0 | 856 | 45 | 0 | 64 | 0 | 0 | 0 | 8,044 | 0 | 0 | 0 | 0 | 19 | 45 |
| 305006 | 187,090 | 2,266 | 52,172 | 1,140 | 302 | 1,296 | 0 | 0 | 0 | 135,301 | 38,561 | 1,055 | 0 | 0 | 433 | 486 |
| 305007 | 158,859 | 7,611 | 57,468 | 1,259 | 207 | 2,227 | 0 | 0 | 0 | 214,451 | 0 | 0 | 0 | 0 | 452 | 512 |
| 305008 | 457 | 0 | 122 | 4 | 0 | 1 | 0 | 0 | 0 | 20,986 | 178 | 189 | 0 | 0 | 35 | 95 |
| 305009 | 472 | 0 | 178 | 9 | 0 | 4 | 0 | 0 | 0 | 9,518 | 0 | 0 | 0 | 0 | 10 | 28 |
| 305010 | 11,673 | 36 | 3,533 | 110 | 0 | 137 | 0 | 0 | 0 | 54,260 | 0 | 0 | 0 | 0 | 2,267 | 2,316 |
| 305011 | 0 | 0 | 4,167 | 219 | 0 | 86 | 0 | 0 | 0 | 3,526 | 1,622 | 53 | 0 | 0 | 6 | 16 |
| 305012 | 5,532 | 15 | 5,439 | 286 | 0 | 1,030 | 0 | 0 | 0 | 19,030 | 0 | 0 | 0 | 0 | 1,480 | 4,229 |
| 305013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 0 | 74 | 211 |
| 305014 | 28,602 | 87 | 40,669 | 2,140 | 991 | 10,815 | 0 | 0 | 0 | 14,784 | 0 | 0 | 0 | 0 | 1,950 | 5,319 |
| 305015 | 259 | 13,205 | 65 | 3 | 0 | 16 | 0 | 0 | 0 | 21,655 | 0 | 0 | 0 | 0 | 8 | 11 |
| 305016 | 15,937 | 0 | 26,666 | 825 | 0 | 29,711 | 0 | 0 | 0 | 86,894 | 29,448 | 4,353 | 434 | 0 | 1,009 | 1,031 |
| 305017 | 1,278 | 0 | 122 | 6 | 0 | 10,806 | 0 | 0 | 0 | 3,109 | 0 | 0 | 0 | 0 | 49 | 78 |
| 305018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,078 | 0 | 0 | 0 | 0 | 49 | 141 |
| 305019 | 26,487 | 0 | 616 | 32 | 0 | 3 | 0 | 0 | 0 | 17,411 | 0 | 0 | 0 | 0 | 0 | 1 |
| 305020 | 2,003 | 0 | 619 | 33 | 0 | 33 | 0 | 0 | 0 | 354,666 | 20,464 | 5,994 | 0 | 0 | 60 | 171 |
| 305021 | 440 | 0 | 590 | 31 | 0 | 0 | 0 | 0 | 0 | 827 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,530 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305024 | 0 | 0 | 61 | 3 | 0 | 43 | 0 | 0 | 0 | 13,609 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 78 | 0 | 61 | 3 | 0 | 3 | 0 | 0 | 0 | 21,164 | 138 | 148 | 0 | 0 | 1 | 2 |
| 305026 | 3 | 0 | 10 | 1 | 0 | 6 | 0 | 0 | 0 | 617 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 292 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 83 | 0 | 0 | 0 | 0 | 946 | 2,702 |
| 305040 | 5,514 | 0 | 2,345 | 123 | 0 | 382 | 0 | 0 | 0 | 32,457 | 0 | 0 | 0 | 0 | 41 | 116 |
| 305100 | 120 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,233 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 634 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305888 | 292 | 0 | 0 | 0 | 0 | 258 | 0 | 0 | 0 | 3,216 | 0 | 0 | 0 | 0 | 174 | 174 |
| 305999 | 6,910 | 0 | 1,684 | 89 | 0 | 8,282 | 0 | 0 | 0 | 36,960 | 0 | 0 | 0 | 0 | 2,158 | 6,167 |
| 306001 | 296,609 | 747 | 186,190 | 7,919 | 0 | 18,384 | 0 | 0 | 0 | 18,730 | 0 | 0 | 0 | 0 | 6,278 | 11,405 |
| 306002 | 263,612 | 8,594 | 38,763 | 6,841 | 0 | 1,363,517 | 0 | 0 | 8,427 | 45,761 | 0 | 0 | 0 | 0 | 63,337 | 98,954 |
| 306003 | 9,474 | 11 | 383 | 68 | 0 | 102,795 | 0 | 0 | 87 | 3,097 | 0 | 0 | 0 | 0 | 2,294 | 3,584 |
| 306004 | 12,150 | 56 | 8,125 | 428 | 0 | 1,910 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 15,632 | 18,317 |
| 306005 | 1,344 | 0 | 13 | 1 | 0 | 34 | 0 | 0 | 0 | 240 | 0 | 0 | 0 | 0 | 107,178 | 112,366 |
| 306006 | 1,229 | 0 | 103 | 15 | 0 | 9 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 34,549 | 42,465 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,851 | 6,851 |
| 306008 | 1,984 | 0 | 2,362 | 124 | 0 | 132 | 0 | 0 | 0 | 163 | 0 | 0 | 0 | 0 | 81,570 | 93,104 |
| 306009 | 16,083 | 0 | 1,714 | 90 | 0 | 104 | 0 | 0 | 0 | 391 | 0 | 0 | 0 | 0 | 5,809 | 11,620 |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,419 | 1,419 |
| 306011 | 84 | 0 | 49 | 3 | 0 | 388 | 0 | 0 | 0 | 36 | 0 | 0 | 0 | 0 | 50,007 | 60,326 |
| 306012 | 19,455 | 0 | 1,777 | 314 | 0 | 6 | 0 | 0 | 0 | 51,386 | 0 | 0 | 0 | 0 | 1,928 | 3,012 |
| 306014 | 4,021 | 0 | 1,150 | 61 | 0 | 47 | 0 | 0 | 0 | 1,786 | 0 | 0 | 0 | 0 | 236 | 536 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,796 | 2,796 |
| 306888 | 469 | 0 | 229 | 12 | 0 | 0 | 0 | 0 | 0 | 174 | 0 | 0 | 0 | 0 | 20,992 | 30,153 |
| 306999 | 61,103 | 0 | 5,373 | 283 | 0 | 57,420 | 0 | 0 | 0 | 3,376 | 0 | 0 | 0 | 0 | 35,893 | 54,718 |
| 307001 | 106,094 | 41,572 | 45,078 | 2,373 | 0 | 713,756 | 0 | 0 | 0 | 78,608 | 94 | 0 | 1,085 | 0 | 11,513 | 11,682 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 307002 | 30,417 | 5,444 | 1,754 | 92 | 0 | 276 | 0 | 0 | 0 | 2,767 | 0 | 0 | 0 | 0 | 237 | 237 |
| 307003 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 176 | 176 |
| 307004 | 0 | 0 | 52 | 3 | 0 | 0 | 0 | 0 | 0 | 1,242 | 0 | 0 | 0 | 0 | 2,157 | 2,157 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 244 | 244 |
| 307007 | 372 | 0 | 4,560 | 240 | 0 | 1,471 | 0 | 0 | 0 | 45,723 | 0 | 0 | 0 | 0 | 6,559 | 6,559 |
| 307008 | 3,073 | 0 | 3,485 | 183 | 0 | 763 | 0 | 0 | 0 | 13,221 | 0 | 0 | 0 | 0 | 1,923 | 1,923 |
| 307011 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,488 | 8,488 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 | 157 |
| 307020 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,270 | 0 | 0 | 0 | 0 | 4,579 | 4,579 |
| 307030 | 7 | 0 | 46 | 2 | 0 | 148 | 0 | 0 | 0 | 2,739 | 0 | 0 | 0 | 0 | 189 | 189 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 843 | 0 | 0 | 0 | 0 | 714 | 714 |
| 307999 | 919 | 0 | 649 | 34 | 0 | 9,561 | 0 | 0 | 0 | 5,243 | 0 | 0 | 0 | 0 | 1,617 | 1,617 |
| 308001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 182 | 0 | 0 | 0 | 0 | 11,073 | 11,073 |
| 308006 | 0 | 0 | 116 | 6 | 0 | 34 | 0 | 0 | 0 | 254 | 0 | 0 | 0 | 0 | 1,033 | 1,033 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | 0 | 0 | 0 | 0 | 6,813 | 6,813 |
| 309001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 0 | 0 | 0 | 0 | 467 | 737 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 765 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 1,992 | 2,758 |
| 309011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 67 |
| 309020 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 | 4,450 | 7,031 |
| 309030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,669 | 0 | 0 | 0 | 0 | 754 | 1,045 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90,275 | 0 | 0 | 0 | 0 | 69 | 96 |
| 309999 | 140 | 0 | 371 | 20 | 0 | 3 | 0 | 0 | 0 | 2,022 | 0 | 0 | 0 | 0 | 3,198 | 3,198 |
| 310001 | 1,038 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 720 | 0 | 0 | 0 | 0 | 13,139 | 13,139 |
| 310002 | 1,075 | 5 | 2,759 | 145 | 0 | 1,593 | 0 | 0 | 0 | 502 | 0 | 0 | 0 | 0 | 804 | 862 |
| 312999 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 240 | 0 | 0 | 0 | 0 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 419 | 419 |
| 330001 | 43 | 0 | 18 | 1 | 0 | 3 | 0 | 0 | 0 | 1,223 | 0 | 0 | 0 | 0 | 22,377 | 22,377 |
| 330002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 | 0 | 0 | 0 | 0 | 3,766 | 3,766 |
| 330003 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 85 | 0 | 0 | 0 | 0 | 82 | 82 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 94 | 94 |
| 390001 | 903 | 0 | 1,968 | 61 | 0 | 120 | 0 | 0 | 0 | 428 | 7 | 7 | 4 | 2 | 6 | 6 |
| 390002 | 71,893 | 192 | 2,680 | 83 | 0 | 29,478 | 0 | 0 | 0 | 8,569 | 139 | 147 | 70 | 38 | 664 | 678 |
| 390004 | 46,919 | 64 | 6,549 | 138 | 0 | 1,005 | 0 | 0 | 0 | 3,057 | 0 | 0 | 0 | 0 | 1,719 | 1,931 |
| 390005 | 4,029 | 9 | 3,479 | 71 | 0 | 1,785 | 0 | 0 | 0 | 4,251 | 0 | 0 | 0 | 0 | 860 | 860 |
| 390006 | 38,151 | 109 | 26,811 | 1,411 | 0 | 52,259 | 0 | 0 | 0 | 11,429 | 0 | 0 | 0 | 0 | 11,261 | 25,493 |
| 390007 | 13,403 | 0 | 2,260 | 119 | 0 | 22,220 | 0 | 0 | 0 | 2,515 | 0 | 0 | 0 | 0 | 234 | 404 |
| 390008 | 5,601 | 2 | 1,055 | 56 | 0 | 34,160 | 0 | 0 | 0 | 426 | 0 | 0 | 0 | 0 | 46 | 46 |
| 390009 | 0 | 0 | 325 | 17 | 0 | 0 | 0 | 0 | 0 | 1,612 | 1 | 1 | 1 | 31 | 130 | 130 |
| 390010 | 0 | 0 | 10 | 1 | 0 | 1 | 0 | 0 | 0 | 846 | 0 | 0 | 0 | 0 | 756 | 1,718 |
| 390012 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 29,212 | 0 | 13,870 | 730 | 0 | 77,163 | 0 | 0 | 0 | 48,893 | 0 | 0 | 0 | 0 | 90,446 | 205,538 |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,633 | 7,633 |
| 401002 | 327 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 205 | 0 | 0 | 0 | 0 | 100,419 | 100,419 |
| 401003 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 921 | 921 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 407 | 407 |
| 401913 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 66 |
| 402001 | 2 | 0 | 302 | 16 | 0 | 84 | 0 | 0 | 0 | 1,093 | 0 | 0 | 0 | 0 | 245,536 | 245,536 |
| 402002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,015 | 2,015 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 0 | 0 | 0 | 0 | 34,008 | 34,008 |
| 402004 | 0 | 0 | [illegible] | 0 | 0 | 1 | 0 | 0 | 0 | 455 | 0 | 0 | 0 | 0 | 140,729 | 140,729 |
| 402005 | 0 | 0 | 28[illegible] | 15 | 0 | 183 | 0 | 0 | 0 | 486 | 0 | 0 | 0 | 0 | 122,551 | 122,551 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | | | | | | |
| 402006 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 1,129 | 0 | 0 | 0 | 0 | 78,612 | 78,612 |
| 402007 | 2 | 0 | 16 | 2 | 0 | 2,048 | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 | 22,573 | 22,573 |
| 402008 | 193 | 0 | 162 | 18 | 0 | 575 | 0 | 0 | 0 | 1,504 | 0 | 0 | 0 | 0 | 21,367 | 61,451 |
| 402009 | 1 | 0 | 588 | 31 | 0 | 42 | 0 | 0 | 0 | 818 | 0 | 0 | 0 | 0 | 221,147 | 221,147 |
| 402010 | 0 | 0 | 48 | 3 | 0 | 13 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 3,858 | 3,858 |
| 402011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,928 | 1,928 |
| 402013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,518 | 16,518 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 103 |
| 402016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 923 | 923 |
| 402017 | 0 | 0 | 471 | 25 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,769 | 32,037 |
| 402018 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 314 | 314 |
| 402019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 337 | 337 |
| 402020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 475 | 519 |
| 402021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 | 140 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,060 | 5,060 |
| 402023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 245 | 245 |
| 402024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 18 | 18 |
| 402025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,655 | 1,655 |
| 402888 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,090 | 29,090 |
| 402901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 64 |
| 402999 | 0 | 0 | 651 | 34 | 0 | 557 | 0 | 0 | 0 | 8,724 | 0 | 0 | 0 | 0 | 88,798 | 88,798 |
| 403001 | 425 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 1,720 | 0 | 0 | 0 | 0 | 161,522 | 170,891 |
| 403002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 | 0 | 0 | 0 | 0 | 66,658 | 67,330 |
| 403003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,839 | 3,868 |
| 403010 | 0 | 0 | 95 | 5 | 0 | 66,886 | 0 | 0 | 0 | 357 | 0 | 0 | 0 | 0 | 41,475 | 42,274 |
| 403011 | 4,350 | 0 | 923 | 49 | 0 | 33,443 | 0 | 0 | 0 | 1,110 | 0 | 0 | 0 | 0 | 34,742 | 34,984 |
| 403012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,430 | 23,430 |
| 403888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,627 | 4,736 |
| 403999 | 223 | 0 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 359 | 0 | 0 | 0 | 0 | 29,774 | 29,774 |
| 404001 | 0 | 0 | 76 | 4 | 0 | 0 | 0 | 0 | 0 | 2,982 | 0 | 0 | 0 | 0 | 113,930 | 113,930 |
| 404002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,205 | 2,205 |
| 405001 | 0 | 0 | 10 | 1 | 0 | 14 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 24,311 | 101,339 |
| 405002 | 0 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,664 | 15,157 |
| 405003 | 0 | 0 | 276 | 15 | 0 | 38 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 | 15,344 | 15,344 |
| 405004 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,533 | 27,533 |
| 405005 | 0 | 0 | 29 | 2 | 0 | 17 | 0 | 0 | 0 | 423 | 0 | 0 | 0 | 0 | 66,633 | 66,633 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 420 |
| 405888 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 1,055 |
| 406001 | 0 | 0 | 0 | 0 | 0 | 100,329 | 0 | 0 | 0 | 1,737 | 0 | 0 | 0 | 0 | 90,703 | 91,457 |
| 406002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 21,748 | 22,615 |
| 406003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 | 5,748 | 5,748 |
| 406004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 8,866 | 8,866 |
| 406888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,147 | 3,147 |
| 490001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,116 | 2,902 |
| 490999 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 445 | 0 | 0 | 0 | 0 | 95,261 | 130,632 |
| 501001 | 5,322 | 9 | 4,743 | 837 | 143 | 58,001 | 5,357 | 0 | 0 | 12,541 | 71 | 18 | 71 | 60 | 1,311 | 6,682 |
| 501002 | 281 | 0 | 1,485 | 262 | 0 | 25,938 | 0 | 0 | 0 | 4,905 | 26 | 6 | 26 | 22 | 12,612 | 12,612 |
| 501005 | 381 | 0 | 1,362 | 240 | 2 | 1,988 | 26 | 0 | 0 | 5,968 | 1 | 0 | 1 | 0 | 72 | 406 |
| 501900 | 1,139 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | 287 | 0 | 0 | 0 | 0 | 0 | 2 |
| 501999 | 6 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 6 | 6 |
| 502001 | 2,101 | 4 | 1,690 | 298 | 79 | 14,550 | 2,104 | 0 | 0 | 1,837 | 10 | 3 | 10 | 9 | 1,228 | 2,646 |
| 502002 | 0 | 0 | 14 | 2 | 0 | 577 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 1 | 35 | 177 |
| 502003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 1,881 | 12 | 10,025 | 1,769 | 23 | 0 | 0 | 0 | 0 | 1,924 | 0 | 0 | 0 | 0 | 382 | 2,262 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 502900 | 535 | 0 | 10 | 1 | 0 | 1 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 0 | 82 | 187 |
| 503001 | 17,600 | 4 | 6,670 | 1,177 | 93 | 218,560 | 3,091 | 0 | 0 | 19,264 | 0 | 0 | 0 | 0 | 5,500 | 28,037 |
| 503002 | 63 | 0 | 566 | 100 | 0 | 22,412 | 0 | 0 | 0 | 1,765 | 0 | 0 | 0 | 0 | 4,243 | 7,369 |
| 503005 | 875 | 2 | 2,287 | 404 | 4 | 351 | 0 | 0 | 0 | 16,130 | 0 | 0 | 0 | 0 | 80 | 476 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503900 | 2,081 | 0 | 685 | 121 | 0 | 2,293 | 0 | 0 | 0 | 589 | 0 | 0 | 0 | 0 | 181 | 925 |
| 599999 | 156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 98 |
| U.S. TOTAL | 24,504,741 | 725,349 | 9,284,610 | 358,489 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 113,808 | 32,025 | 12,975 | 15,474 | 3,963,258 | 4,657,042 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 101002 | 14,327,814 | 306,650 | 4,381,477 | 135,510 | 27 | 145,795 | 430,279 | 52,085 | 121 | 473,207 | 7,666 | 8,092 | 3,880 | 2,082 | 23,430 | 23,934 |
| 101003 | 253,611 | 32,678 | 177,128 | 5,478 | 5 | 12,310 | 143 | 143 | 6 | 47,413 | 768 | 811 | 389 | 209 | 1,834 | 1,873 |
| 101004 | 1,256,962 | 37.295 | 349,825 | 7,139 | 0 | 36,133 | 0 | 0 | 0 | 49,230 | 0 | 0 | 0 | 0 | 11,500 | 12,922 |
| 101005 | 7,583 | 939 | 4,665 | 95 | 0 | 1,002 | 0 | 0 | 0 | 85 | 0 | 0 | 0 | 0 | 41 | 41 |
| 101006 | 878 | 0 | 641,666 | 33,772 | 0 | 61,972 | 0 | 0 | 0 | 4,191 | 0 | 0 | 0 | 0 | 1,236 | 2,809 |
| 102001 | 3,257 | 251 | 1,738 | 84 | 0 | 105 | 339 | 15 | 0 | 229 | 4 | 4 | 2 | 1 | 9 | 17 |
| 102002 | 1,077,662 | 39,644 | 344,122 | 10,643 | 25 | 31,956 | 28,570 | 11,077 | 9 | 314,953 | 5,101 | 5,385 | 2,582 | 1,385 | 5,856 | 5,982 |
| 102003 | 47,747 | 2,757 | 10,387 | 321 | 0 | 3,348 | 234 | 40 | 1 | 22,089 | 358 | 378 | 181 | 97 | 120 | 122 |
| 102004 | 948,923 | 20,334 | 250,225 | 5,107 | 0 | 48,309 | 0 | 0 | 0 | 72,206 | 0 | 0 | 0 | 0 | 45,601 | 51,239 |
| 102005 | 86,690 | 3,723 | 34,903 | 712 | 0 | 7,089 | 0 | 0 | 0 | 5,772 | 0 | 0 | 0 | 0 | 14,541 | 14,541 |
| 102006 | 37,652 | 185 | 443,834 | 23,360 | 0 | 97,164 | 0 | 0 | 0 | 15,512 | 0 | 0 | 0 | 0 | 11,621 | 26,408 |
| 102007 | 273,564 | 1,011 | 88,153 | 4,344 | 0 | 12,843 | 0 | 0 | 0 | 10,331 | 0 | 0 | 0 | 0 | 6,865 | 10,210 |
| 102008 | 4,056 | 15 | 1,061 | 33 | 0 | 17,370 | 0 | 0 | 0 | 1,869 | 0 | 0 | 0 | 0 | 268 | 274 |
| 102009 | 14,029 | 64,244 | 85,598 | 2,647 | 0 | 93,524 | 0 | 0 | 0 | 83,427 | 42 | 33 | 33 | 1,627 | 56,648 | 57,866 |
| 102010 | 49 | 0 | 153 | 8 | 0 | 21 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 9 | 20 |
| 102011 | 559 | 0 | 1,625 | 86 | 0 | 1,309 | 0 | 0 | 0 | 8,049 | 0 | 0 | 0 | 0 | 3,677 | 3,677 |
| 102012 | 3,128 | 0 | 1,637 | 51 | 0 | 14 | 0 | 0 | 0 | 1,645 | 0 | 0 | 0 | 0 | 20 | 20 |
| 102013 | 15,881 | 0 | 2,496 | 51 | 332 | 103 | 0 | 0 | 0 | 590 | 0 | 0 | 0 | 0 | 58 | 58 |
| 103001 | 280 | 15 | 97 | 3 | 0 | 4 | 19 | 0 | 0 | 366 | 6 | 6 | 3 | 2 | 3 | 3 |
| 103002 | 75,671 | 2,801 | 16,806 | 520 | 1 | 4,023 | 1,569 | 168 | 1 | 26,394 | 428 | 451 | 216 | 116 | 861 | 880 |
| 103003 | 1,637 | 108 | 298 | 9 | 0 | 309 | 16 | 1 | 0 | 1,869 | 30 | 32 | 15 | 8 | 27 | 27 |
| 103004 | 73,821 | 9,162 | 28,888 | 590 | 0 | 2,134 | 0 | 0 | 0 | 30,740 | 0 | 0 | 0 | 0 | 1,228 | 1,379 |
| 103005 | 18,199 | 898 | 3,104 | 63 | 0 | 916 | 0 | 0 | 0 | 9,286 | 0 | 0 | 0 | 0 | 796 | 796 |
| 103006 | 562 | 0 | 34,076 | 1,793 | 0 | 4,478 | 0 | 0 | 0 | 1,179 | 0 | 0 | 0 | 0 | 1,065 | 2,420 |
| 103009 | 240 | 1,286 | 2,410 | 75 | 0 | 1,552 | 0 | 0 | 0 | 961 | 0 | 0 | 0 | 19 | 840 | 858 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103013 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 5 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 28,849 | 150 | 9,588 | 478 | 0 | 39,469 | 0 | 0 | 0 | 2,814 | 0 | 0 | 0 | 0 | 3,148 | 4,727 |
| 105002 | 866 | 558 | 806 | 16 | 0 | 201 | 0 | 0 | 0 | 119 | 0 | 0 | 0 | 0 | 198 | 198 |
| 199999 | 7,870 | 0 | 2,170 | 114 | 0 | 452 | 0 | 0 | 0 | 1,106 | 0 | 0 | 0 | 0 | 1,116 | 1,116 |
| 201001 | 8,837 | 15 | 25,647 | 2,850 | 0 | 6,345 | 0 | 0 | 0 | 1,984 | 0 | 0 | 0 | 0 | 1,800 | 2,103 |
| 201002 | 24 | 0 | 69,705 | 4,449 | 0 | 15,030 | 0 | 0 | 0 | 1,288 | 0 | 0 | 0 | 0 | 1,831 | 6,919 |
| 202001 | 2,917 | 12 | 11,082 | 1,231 | 0 | 3,317 | 0 | 0 | 0 | 741 | 0 | 0 | 0 | 0 | 1,376 | 1,608 |
| 202002 | 4,461 | 0 | 548,167 | 34,989 | 0 | 102,457 | 0 | 0 | 0 | 2,865 | 0 | 0 | 0 | 0 | 11,052 | 75,591 |
| 202003 | 8 | 0 | 135 | 15 | 0 | 5,842 | 0 | 0 | 0 | 170 | 0 | 0 | 0 | 0 | 249 | 290 |
| 202004 | 9 | 0 | 573 | 64 | 0 | 166 | 0 | 0 | 0 | 43 | 0 | 0 | 0 | 0 | 16 | 18 |
| 203001 | 9 | 0 | 413 | 46 | 0 | 73 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 17 | 20 |
| 203002 | 3 | 0 | 698 | 45 | 0 | 1,239 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 9 | 66 |
| 204001 | 177 | 0 | 578 | 37 | 0 | 430 | 0 | 0 | 0 | 142 | 0 | 0 | 0 | 0 | 69 | 494 |
| 204004 | 53 | 0 | 722 | 80 | 0 | 1,089 | 0 | 0 | 0 | 191 | 0 | 0 | 0 | 0 | 336 | 392 |
| 299999 | 0 | 0 | 461 | 24 | 0 | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 301001 | 1,329 | 0 | 3,951 | 208 | 0 | 25,842 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 0 | 8,272 | 8,272 |
| 301003 | 1,284 | 4 | 6,004 | 316 | 0 | 56,412 | 0 | 0 | 2,820 | 470 | 0 | 0 | 0 | 0 | 14,033 | 14,033 |
| 301005 | 18,071 | 0 | 1,088 | 57 | 0 | 1,670,694 | 0 | 0 | 0 | 2,584 | 0 | 0 | 0 | 0 | 171,953 | 171,953 |
| 301006 | 1,651 | 0 | 17,737 | 934 | 0 | 64,149 | 0 | 0 | 0 | 69,093 | 0 | 0 | 0 | 0 | 85,832 | 85,832 |
| 301007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 660 | 665 |
| 301008 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 49 | 0 | 0 | 0 | 0 | 336 | 336 |
| 301009 | 681 | 0 | 102 | 5 | 0 | 21 | 0 | 0 | 0 | 938 | 0 | 0 | 0 | 0 | 543 | 543 |
| 301010 | 73 | 0 | 2,037 | 107 | 0 | 0 | 0 | 0 | 0 | 905 | 0 | 0 | 0 | 0 | 648 | 648 |
| 301011 | 0 | 0 | 0 | 0 | 0 | 145 | 663 | 0 | 0 | 46 | 0 | 0 | 0 | 0 | 38 | 87 |
| 301012 | 113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 925 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301013 | 6,645 | 0 | 41,309 | 2,174 | 0 | 5,042 | 0 | 0 | 0 | 1,207 | 0 | 0 | 0 | 0 | 1,352 | 1,352 |
| 301014 | 4,135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,689 | 0 | 0 | 0 | 0 | 14,524 | 14,524 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 5,402 | 5,402 |
| 301016 | 10,864 | 0 | 0 | 0 | 0 | 11 | 0 | 1,497 | 0 | 968 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 1 | 0 | 72 | 4 | 0 | 0 | 0 | 0 | 0 | 341 | 0 | 0 | 0 | 0 | 10 | 10 |
| 301018 | 1,640 | 0 | 262 | 14 | 0 | 202 | 0 | 0 | 0 | 53,117 | 0 | 0 | 0 | 0 | 95,707 | 96,456 |
| 301019 | 332 | 5 | 0 | 0 | 0 | 19,972 | 0 | 0 | 0 | 6,526 | 0 | 0 | 0 | 0 | 514 | 1,853 |
| 301020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1,605 | 1,605 |
| 301021 | 220 | 0 | 407 | 21 | 0 | 4,511 | 0 | 0 | 0 | 4,420 | 0 | 0 | 0 | 0 | 198 | 198 |
| 301022 | 6,990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 327 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 261,997 | 1,297 | 325 | 17 | 0 | 1,102 | 0 | 0 | 0 | 14,361 | 0 | 0 | 0 | 0 | 56 | 57 |
| 301024 | 6,773 | 0 | 2 | 0 | 0 | 3,778 | 0 | 0 | 0 | 1,094 | 0 | 0 | 0 | 0 | 15,621 | 15,621 |
| 301025 | 548 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 0 | 0 | 0 | 19,804 | 20,157 |
| 301026 | 4,585 | 0 | 256 | 13 | 0 | 17,240 | 0 | 0 | 0 | 1,306 | 0 | 0 | 0 | 0 | 81,764 | 81,764 |
| 301027 | 909 | 0 | 1,675 | 88 | 0 | 7,368 | 0 | 0 | 203,933 | 10,192 | 0 | 0 | 0 | 0 | 41 | 41 |
| 301028 | 952 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,094 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 5,421 | 0 | 13 | 1 | 0 | 4 | 0 | 27,056 | 0 | 559 | 0 | 0 | 0 | 0 | 3 | 3 |
| 301030 | 7,875 | 0 | 7,038 | 370 | 0 | 4 | 0 | 1,754 | 695 | 7,444 | 0 | 0 | 0 | 0 | 29 | 29 |
| 301031 | 0 | 0 | 0 | 0 | 0 | 32,530 | 0 | 0 | 0 | 262 | 0 | 0 | 0 | 0 | 53,049 | 53,049 |
| 301032 | 228,517 | 2,792 | 581 | 31 | 0 | 2,126 | 0 | 0 | 0 | 891 | 0 | 0 | 0 | 0 | 1,274 | 1,274 |
| 301033 | 717 | 0 | 583 | 31 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 2,485 | 2,485 |
| 301034 | 983 | 0 | 3,107 | 164 | 0 | 103 | 0 | 0 | 0 | 376 | 0 | 0 | 0 | 0 | 2,428 | 2,460 |
| 301035 | 10,201 | 4 | 1,235 | 65 | 0 | 24,876 | 0 | 0 | 0 | 1,492 | 0 | 0 | 0 | 0 | 4 | 6 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 286 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,361 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301041 | 1,732 | 5 | 0 | 0 | 0 | 102 | 0 | 0 | 0 | 303 | 0 | 0 | 0 | 0 | 2,954 | 3,006 |
| 301042 | 0 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 1,750 | 1,750 |
| 301050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,079 | 1,098 |
| 301060 | 205 | 0 | 10 | 1 | 0 | 158 | 0 | 0 | 0 | 3,581 | 0 | 0 | 0 | 0 | 1,369 | 1,392 |
| 301091 | 34 | 0 | 38 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 723 | 723 |
| 301100 | 0 | 0 | 0 | 0 | 0 | 12,010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 225 | 225 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301120 | 0 | 0 | 7 | 0 | 0 | 2 | 0 | 0 | 0 | 343 | 0 | 0 | 0 | 0 | 1,224 | 1,224 |
| 301125 | 227 | 0 | 46 | 2 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 1,911 | 1,911 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 | 0 | 0 | 137 | 227 |
| 301132 | 63 | 0 | 577 | 30 | 0 | 159 | 0 | 0 | 0 | 246 | 0 | 0 | 0 | 0 | 4,147 | 4,217 |
| 301137 | 435 | 0 | 6 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 294 | 299 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 | 118 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 | 124 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 345 | 345 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,508 | 1,535 |
| 301181 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 | 90 |
| 301197 | 2,689 | 0 | 318 | 17 | 0 | 1,326 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 20,868 | 20,868 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 925 | 925 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 472 | 472 |
| 301250 | 1 | 0 | 2,298 | 121 | 0 | 3,596 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1,244 | 1,244 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 906 | 906 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 96 |
| 301254 | 22 | 0 | 194 | 10 | 0 | 5,377 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,579 | 7,579 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 6,719 | 6,758 |
| 301820 | 220 | 0 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 1,683 | 1,683 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301888 | 224 | 0 | 4 | 0 | 0 | 33 | 0 | 0 | 0 | 11,404 | 0 | 0 | 0 | 0 | 424 | 431 |
| 301900 | 165,666 | 0 | 440 | 23 | 0 | 22 | 0 | 0 | 0 | 373 | 0 | 0 | 0 | 0 | 591 | 591 |
| 301999 | 52,368 | 0 | 28,237 | 1,486 | 0 | 218,974 | 0 | 0 | 0 | 47,258 | 0 | 0 | 0 | 0 | 191,735 | 191,735 |
| 302001 | 1 | 0 | 170 | 9 | 0 | 14 | 0 | 0 | 0 | 16,849 | 0 | 0 | 0 | 0 | 4 | 4 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 302002 | 0 | 0 | 53 | 3 | 0 | 44 | 0 | 0 | 0 | 1,794 | 0 | 0 | 0 | 0 | 44 | 44 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 561 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302005 | 16 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 40,913 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302006 | 5 | 0 | 76 | 4 | 0 | 48 | 0 | 0 | 0 | 181,743 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302007 | 180 | 0 | 23 | 1 | 0 | 3 | 0 | 0 | 0 | 39,119 | 0 | 0 | 0 | 0 | 690 | 6,391 |
| 302008 | 464 | 0 | 4 | 0 | 0 | 15 | 0 | 0 | 0 | 8,782 | 0 | 0 | 0 | 0 | 2 | 2 |
| 302009 | 1,147 | 0 | 109 | 6 | 0 | 13 | 0 | 0 | 0 | 1,465 | 0 | 0 | 0 | 0 | 367 | 1,970 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 557 | 0 | 0 | 0 | 0 | 21,804 | 21,804 |
| 302012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 23 | 305 |
| 302013 | 0 | 0 | 1 | 0 | 0 | 65 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 0 | 762 | 778 |
| 302014 | 96 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,439 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302015 | 1,519 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 1,528 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302016 | 634 | 0 | 306 | 16 | 0 | 23 | 0 | 0 | 0 | 7,107 | 0 | 0 | 0 | 0 | 6 | 6 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 215 |
| 302019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 707 | 9,238 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 691 | 2,313 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 133 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 442 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302032 | 1,085 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 4 | 52 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,735 | 1,735 |
| 302888 | 0 | 0 | 2 | 0 | 0 | 24 | 0 | 0 | 0 | 347 | 0 | 0 | 0 | 0 | 14 | 147 |
| 302999 | 1,126 | 0 | 367 | 19 | 0 | 15 | 0 | 0 | 0 | 4,641 | 0 | 0 | 0 | 0 | 336 | 4,391 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,169 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 79,475 | 509 | 113,158 | 5,956 | 0 | 615,956 | 0 | 8,844 | 0 | 42,620 | 0 | 0 | 0 | 0 | 14,024 | 30,027 |
| 303002 | 1,273 | 0 | 848 | 45 | 0 | 148 | 0 | 0 | 0 | 19,326 | 0 | 0 | 0 | 0 | 8 | 8 |
| 303003 | 68,690 | 11,560 | 3,681 | 194 | 0 | 34,471 | 0 | 0 | 6,689 | 53,145 | 0 | 0 | 0 | 0 | 29,601 | 63,380 |
| 303004 | 27 | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 0 | 1,967 | 0 | 0 | 0 | 0 | 36 | 78 |
| 303005 | 997,057 | 32,109 | 895 | 47 | 145 | 6,542 | 0 | 0 | 0 | 18,654 | 0 | 0 | 0 | 0 | 15 | 18 |
| 303006 | 351 | 0 | 95 | 5 | 54 | 256 | 0 | 0 | 0 | 25,589 | 271 | 371 | 345 | 0 | 17 | 20 |
| 303007 | 83 | 0 | 0 | 0 | 0 | 329 | 0 | 0 | 0 | 1,116 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 57,521 | 670 | 14,956 | 1,079 | 1,130 | 1,012,107 | 0 | 0 | 0 | 148,196 | 5,898 | 2,460 | 2,579 | 8,343 | 3,925 | 16,143 |
| 303009 | 48,773 | 0 | 25,042 | 2,148 | 1,523 | 335,050 | 0 | 0 | 0 | 58,116 | 0 | 0 | 0 | 0 | 3,873 | 4,038 |
| 303010 | 52,529 | 1,390 | 2 | 0 | 805 | 39,853 | 0 | 0 | 0 | 6,467 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303011 | 1,759 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,601 | 0 | 0 | 0 | 0 | 66 | 66 |
| 303012 | 0 | 0 | 141 | 7 | 0 | 4,530 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 1,999 | 0 | 178 | 9 | 0 | 5,390 | 0 | 0 | 0 | 2,391 | 0 | 0 | 0 | 0 | 387 | 387 |
| 303023 | 9,625 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62,067 | 304 | 149 | 0 | 0 | 0 | 0 |
| 303030 | 34,286 | 10,185 | 86 | 5 | 349 | 15 | 0 | 0 | 0 | 8,035 | 0 | 0 | 0 | 0 | 3 | 5 |
| 303888 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1,677 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 2,502 | 0 | 93 | 16 | 0 | 501 | 0 | 0 | 0 | 954 | 0 | 0 | 0 | 0 | 76 | 186 |
| 304001 | 985 | 0 | 7,629 | 402 | 0 | 892 | 0 | 0 | 0 | 10,504 | 0 | 0 | 0 | 0 | 3,313 | 5,234 |
| 304002 | 5 | 0 | 803 | 42 | 207 | 3,386 | 0 | 0 | 0 | 4,400 | 0 | 0 | 0 | 0 | 161 | 254 |
| 304003 | 6,627 | 8 | 984 | 174 | 451 | 445,491 | 0 | 0 | 0 | 33,418 | 0 | 0 | 0 | 0 | 1,653 | 4,053 |
| 304004 | 24,127 | 89 | 309 | 16 | 250 | 145 | 0 | 0 | 0 | 7,884 | 0 | 0 | 0 | 0 | 2,987 | 4,718 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304006 | 29 | 0 | 3 | 0 | 0 | 5,797 | 0 | 0 | 0 | 135 | 32 | 19 | 0 | 0 | 0 | 0 |
| 304007 | 6,177 | 0 | 2,877 | 508 | 0 | 4,837 | 0 | 0 | 0 | 5,823 | 0 | 0 | 0 | 0 | 94 | 231 |
| 304008 | 1,555 | 0 | 531 | 28 | 0 | 15 | 0 | 0 | 0 | 2,763 | 0 | 0 | 0 | 0 | 3 | 6 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 696 | 0 | 20 | 1 | 0 | 3 | 0 | 0 | 0 | 713 | 0 | 0 | 0 | 0 | 151 | 151 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 304022 | 1 | 0 | 763 | 40 | 0 | 24 | 0 | 0 | 0 | 116 | 0 | 0 | 0 | 0 | 187 | 295 |
| 304034 | 61 | 0 | 147 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 0 | 0 | 0 | 0 | 0 | 503 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 433 | 683 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 1 | 1 |
| 304999 | 2,429 | 0 | 235 | 12 | 0 | 229 | 0 | 0 | 0 | 2,894 | 0 | 0 | 0 | 0 | 511 | 807 |
| 305001 | 9 | 0 | 3 | 0 | 0 | 2,114 | 0 | 0 | 0 | 4,216 | 0 | 0 | 0 | 0 | 2,608 | 2,614 |
| 305002 | 38,414 | 0 | 8,274 | 435 | 0 | 5,436 | 0 | 0 | 0 | 66,244 | 0 | 0 | 0 | 0 | 562 | 1,277 |
| 305003 | 5,704 | 24 | 3,199 | 135 | 0 | 1,797 | 0 | 0 | 0 | 117,001 | 0 | 0 | 0 | 0 | 743 | 1,549 |
| 305004 | 151 | 1 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 430 | 0 | 0 | 0 | 0 | 278 | 278 |
| 305005 | 752 | 0 | 777 | 41 | 0 | 58 | 0 | 0 | 0 | 7,298 | 0 | 0 | 0 | 0 | 17 | 41 |
| 305006 | 169,728 | 2,056 | 47,330 | 1,035 | 274 | 1,176 | 0 | 0 | 0 | 122,745 | 34,982 | 957 | 0 | 0 | 393 | 441 |
| 305007 | 144,117 | 6,905 | 52,135 | 1,142 | 188 | 2,020 | 0 | 0 | 0 | 194,550 | 0 | 0 | 0 | 0 | 410 | 465 |
| 305008 | 415 | 0 | 111 | 4 | 0 | 1 | 0 | 0 | 0 | 19,039 | 162 | 171 | 0 | 0 | 32 | 86 |
| 305009 | 428 | 0 | 161 | 8 | 0 | 4 | 0 | 0 | 0 | 8,635 | 0 | 0 | 0 | 0 | 9 | 26 |
| 305010 | 10,590 | 33 | 3,205 | 100 | 0 | 124 | 0 | 0 | 0 | 49,225 | 0 | 0 | 0 | 0 | 2,057 | 2,101 |
| 305011 | 0 | 0 | 3,780 | 199 | 0 | 78 | 0 | 0 | 0 | 3,199 | 1,471 | 48 | 0 | 0 | 5 | 15 |
| 305012 | 5,019 | 14 | 4,934 | 260 | 0 | 934 | 0 | 0 | 0 | 17,264 | 0 | 0 | 0 | 0 | 1,343 | 3,836 |
| 305013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 | 0 | 0 | 0 | 0 | 67 | 191 |
| 305014 | 25,948 | 79 | 36,095 | 1,942 | 899 | 9,811 | 0 | 0 | 0 | 13,412 | 0 | 0 | 0 | 0 | 1,769 | 4,825 |
| 305015 | 235 | 11,980 | 59 | 2 | 0 | 15 | 0 | 0 | 0 | 19,645 | 0 | 0 | 0 | 0 | 7 | 10 |
| 305016 | 14,458 | 0 | 24,192 | 748 | 0 | 26,954 | 0 | 0 | 0 | 78,830 | 26,716 | 3,949 | 394 | 0 | 916 | 935 |
| 305017 | 1,159 | 0 | 110 | 6 | 0 | 9,803 | 0 | 0 | 0 | 2,820 | 0 | 0 | 0 | 0 | 45 | 71 |
| 305018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 978 | 0 | 0 | 0 | 0 | 45 | 128 |
| 305019 | 24,029 | 0 | 558 | 29 | 0 | 3 | 0 | 0 | 0 | 15,795 | 0 | 0 | 0 | 0 | 0 | 1 |
| 305020 | 1,817 | 0 | 562 | 30 | 0 | 30 | 0 | 0 | 0 | 321,754 | 18,565 | 5,438 | 0 | 0 | 54 | 155 |
| 305021 | 399 | 0 | 535 | 28 | 0 | 0 | 0 | 0 | 0 | 750 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,295 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305024 | 0 | 0 | 55 | 3 | 0 | 39 | 0 | 0 | 0 | 12,346 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 71 | 0 | 55 | 3 | 0 | 3 | 0 | 0 | 0 | 19,200 | 125 | 134 | 0 | 0 | 1 | 2 |
| 305026 | 3 | 0 | 9 | 0 | 0 | 5 | 0 | 0 | 0 | 560 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 265 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 858 | 2,452 |
| 305040 | 5,002 | 0 | 2,127 | 112 | 0 | 347 | 0 | 0 | 0 | 29,445 | 0 | 0 | 0 | 0 | 37 | 105 |
| 305100 | 109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 575 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305888 | 265 | 0 | 0 | 0 | 0 | 234 | 0 | 0 | 0 | 2,918 | 0 | 0 | 0 | 0 | 158 | 158 |
| 305999 | 6,269 | 0 | 1,528 | 80 | 0 | 7,513 | 0 | 0 | 0 | 33,530 | 0 | 0 | 0 | 0 | 1,958 | 5,595 |
| 306001 | 269,085 | 678 | 168,912 | 7,184 | 0 | 16,678 | 0 | 0 | 0 | 16,992 | 0 | 0 | 0 | 0 | 5,696 | 10,347 |
| 306002 | 239,149 | 7,796 | 35,166 | 6,206 | 0 | 1,236,986 | 0 | 0 | 7,645 | 41,514 | 0 | 0 | 0 | 0 | 57,459 | 89,771 |
| 306003 | 8,595 | 10 | 348 | 61 | 0 | 93,256 | 0 | 0 | 79 | 2,810 | 0 | 0 | 0 | 0 | 2,081 | 3,251 |
| 306004 | 11,023 | 51 | 7,371 | 388 | 0 | 1,733 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 14,182 | 16,617 |
| 306005 | 1,219 | 0 | 12 | 1 | 0 | 31 | 0 | 0 | 0 | 218 | 0 | 0 | 0 | 0 | 97,232 | 101,939 |
| 306006 | 1,115 | 0 | 94 | 14 | 0 | 8 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 31,343 | 38,524 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,215 | 6,215 |
| 306008 | 1,800 | 0 | 2,143 | 113 | 0 | 120 | 0 | 0 | 0 | 148 | 0 | 0 | 0 | 0 | 74,000 | 84,464 |
| 306009 | 14,591 | 0 | 1,555 | 82 | 0 | 94 | 0 | 0 | 0 | 355 | 0 | 0 | 0 | 0 | 5,270 | 10,542 |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,287 | 1,287 |
| 306011 | 76 | 0 | 45 | 2 | 0 | 352 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 45,366 | 54,728 |
| 306012 | 17,650 | 0 | 1,612 | 284 | 0 | 5 | 0 | 0 | 0 | 46,617 | 0 | 0 | 0 | 0 | 1,749 | 2,733 |
| 306014 | 3,648 | 0 | 1,044 | 55 | 0 | 43 | 0 | 0 | 0 | 1,620 | 0 | 0 | 0 | 0 | 214 | 486 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,537 | 2,537 |
| 306888 | 425 | 0 | 206 | 11 | 0 | 0 | 0 | 0 | 0 | 158 | 0 | 0 | 0 | 0 | 19,044 | 27,355 |
| 306999 | 55,433 | 0 | 4,875 | 257 | 0 | 52,092 | 0 | 0 | 0 | 3,063 | 0 | 0 | 0 | 0 | 32,563 | 49,640 |
| 307001 | 96,249 | 37,714 | 40,894 | 2,152 | 0 | 647,521 | 0 | 0 | 0 | 71,313 | 86 | 0 | 984 | 0 | 10,445 | 10,598 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 307002 | 27,594 | 4,939 | 1,591 | 84 | 0 | 250 | 0 | 0 | 0 | 2,510 | 0 | 0 | 0 | 0 | 215 | 215 |
| 307003 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 160 | 160 |
| 307004 | 0 | 0 | 47 | 2 | 0 | 0 | 0 | 0 | 0 | 1,127 | 0 | 0 | 0 | 0 | 1,957 | 1,957 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 221 | 221 |
| 307007 | 337 | 0 | 4,137 | 218 | 0 | 1,334 | 0 | 0 | 0 | 41,480 | 0 | 0 | 0 | 0 | 5,950 | 5,950 |
| 307008 | 2,788 | 0 | 3,161 | 166 | 0 | 692 | 0 | 0 | 0 | 11,994 | 0 | 0 | 0 | 0 | 1,745 | 1,745 |
| 307011 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,700 | 7,700 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 | 142 |
| 307020 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,039 | 0 | 0 | 0 | 0 | 4,154 | 4,154 |
| 307030 | 6 | 0 | 41 | 2 | 0 | 134 | 0 | 0 | 0 | 2,485 | 0 | 0 | 0 | 0 | 171 | 171 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 765 | 0 | 0 | 0 | 0 | 648 | 648 |
| 307999 | 834 | 0 | 589 | 31 | 0 | 8,674 | 0 | 0 | 0 | 4,756 | 0 | 0 | 0 | 0 | 1,467 | 1,467 |
| 308001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 0 | 0 | 0 | 10,046 | 10,046 |
| 308006 | 0 | 0 | 105 | 6 | 0 | 31 | 0 | 0 | 0 | 230 | 0 | 0 | 0 | 0 | 937 | 937 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 0 | 6,181 | 6,181 |
| 309001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 423 | 669 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 694 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 1,807 | 2,502 |
| 309011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 61 |
| 309020 | 0 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 55 | 0 | 0 | 0 | 0 | 4,037 | 6,378 |
| 309030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,421 | 0 | 0 | 0 | 0 | 684 | 948 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81,898 | 0 | 0 | 0 | 0 | 63 | 87 |
| 309999 | 127 | 0 | 336 | 18 | 0 | 3 | 0 | 0 | 0 | 1,834 | 0 | 0 | 0 | 0 | 2,901 | 2,901 |
| 310001 | 942 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 653 | 0 | 0 | 0 | 0 | 11,920 | 11,920 |
| 310002 | 975 | 5 | 2,503 | 132 | 0 | 1,445 | 0 | 0 | 0 | 455 | 0 | 0 | 0 | 0 | 730 | 782 |
| 312599 | 0 | 0 | 6 | 0 | 0 | 2 | 0 | 0 | 0 | 218 | 0 | 0 | 0 | 0 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 380 | 380 |
| 330001 | 39 | 0 | 16 | 1 | 0 | 3 | 0 | 0 | 0 | 1,110 | 0 | 0 | 0 | 0 | 20,300 | 20,300 |
| 330002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 0 | 0 | 0 | 0 | 3,417 | 3,417 |
| 330003 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 77 | 0 | 0 | 0 | 0 | 74 | 74 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 85 | 85 |
| 390001 | 819 | 0 | 1,785 | 55 | 0 | 109 | 0 | 0 | 0 | 388 | 6 | 7 | 3 | 2 | 5 | 5 |
| 390002 | 65,221 | 174 | 2,431 | 75 | 0 | 26,743 | 0 | 0 | 0 | 7,774 | 126 | 133 | 64 | 34 | 602 | 615 |
| 390004 | 42,565 | 58 | 5,942 | 125 | 0 | 912 | 0 | 0 | 0 | 2,773 | 0 | 0 | 0 | 0 | 1,559 | 1,752 |
| 390005 | 3,655 | 8 | 3,156 | 64 | 0 | 1,619 | 0 | 0 | 0 | 3,857 | 0 | 0 | 0 | 0 | 700 | 780 |
| 390006 | 34,611 | 99 | 24,323 | 1,280 | 0 | 47,409 | 0 | 0 | 0 | 10,368 | 0 | 0 | 0 | 0 | 10,216 | 23,127 |
| 390007 | 12,159 | 0 | 2,050 | 108 | 0 | 20,158 | 0 | 0 | 0 | 2,282 | 0 | 0 | 0 | 0 | 212 | 367 |
| 390008 | 5,081 | 2 | 958 | 50 | 0 | 30,990 | 0 | 0 | 0 | 386 | 0 | 0 | 0 | 0 | 42 | 42 |
| 390009 | 0 | 0 | 295 | 16 | 0 | 0 | 0 | 0 | 0 | 1,462 | 1 | 1 | 1 | 29 | 118 | 118 |
| 390010 | 0 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 767 | 0 | 0 | 0 | 0 | 686 | 1,558 |
| 390012 | 56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 26,501 | 0 | 12,583 | 662 | 0 | 70,002 | 0 | 0 | 0 | 44,356 | 0 | 0 | 0 | 0 | 82,052 | 186,464 |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,925 | 6,925 |
| 401002 | 297 | 0 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 186 | 0 | 0 | 0 | 0 | 91,100 | 91,100 |
| 401003 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 836 | 836 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 369 | 369 |
| 401913 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 60 |
| 402001 | 2 | 0 | 274 | 14 | 0 | 76 | 0 | 0 | 0 | 992 | 0 | 0 | 0 | 0 | 222,751 | 222,751 |
| 402002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,828 | 1,828 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 0 | 0 | 0 | 0 | 30,852 | 30,852 |
| 402004 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 413 | 0 | 0 | 0 | 0 | 127,670 | 127,670 |
| 402005 | 0 | 0 | 256 | 13 | 0 | 166 | 0 | 0 | 0 | 441 | 0 | 0 | 0 | 0 | 111,179 | 111,179 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 402006 | 0 | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 1,024 | 0 | 0 | 0 | 0 | 71,317 | 71,317 |
| 402007 | 2 | 0 | 15 | 2 | 0 | 1,858 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 | 20,478 | 20,478 |
| 402008 | 175 | 0 | 147 | 16 | 0 | 522 | 0 | 0 | 0 | 1,364 | 0 | 0 | 0 | 0 | 19,384 | 55,748 |
| 402009 | 1 | 0 | 533 | 28 | 0 | 38 | 0 | 0 | 0 | 742 | 0 | 0 | 0 | 0 | 200,625 | 200,625 |
| 402010 | 0 | 0 | 43 | 2 | 0 | 12 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 3,500 | 3,500 |
| 402011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,749 | 1,749 |
| 402013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,985 | 14,985 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 93 |
| 402016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 837 | 837 |
| 402017 | 0 | 0 | 427 | 22 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,821 | 29,064 |
| 402018 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 285 | 285 |
| 402019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 306 | 306 |
| 402020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 431 | 471 |
| 402021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 | 127 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,590 | 4,590 |
| 402023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 0 | 222 | 222 |
| 402024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 16 |
| 402025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,501 | 1,501 |
| 402888 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,391 | 26,391 |
| 402901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 58 |
| 402999 | 0 | 0 | 590 | 31 | 0 | 505 | 0 | 0 | 0 | 7,914 | 0 | 0 | 0 | 0 | 80,558 | 80,558 |
| 403001 | 386 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 1,560 | 0 | 0 | 0 | 0 | 146,533 | 155,033 |
| 403002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 0 | 0 | 0 | 0 | 60,472 | 61,082 |
| 403003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,482 | 3,509 |
| 403010 | 0 | 0 | 86 | 5 | 0 | 60,679 | 0 | 0 | 0 | 324 | 0 | 0 | 0 | 0 | 37,626 | 38,351 |
| 403011 | 3,946 | 0 | 838 | 44 | 0 | 30,340 | 0 | 0 | 0 | 1,007 | 0 | 0 | 0 | 0 | 31,518 | 31,738 |
| 403012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,256 | 21,256 |
| 403888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,198 | 4,296 |
| 403999 | 202 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 326 | 0 | 0 | 0 | 0 | 27,011 | 27,011 |
| 404001 | 0 | 0 | 69 | 4 | 0 | 0 | 0 | 0 | 0 | 2,705 | 0 | 0 | 0 | 0 | 103,358 | 103,358 |
| 404002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,000 | 2,000 |
| 405001 | 0 | 0 | 9 | 0 | 0 | 13 | 0 | 0 | 0 | 48 | 0 | 0 | 0 | 0 | 22,055 | 91,935 |
| 405002 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,324 | 13,750 |
| 405003 | 0 | 0 | 250 | 13 | 0 | 34 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 13,920 | 13,920 |
| 405004 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24,978 | 24,978 |
| 405005 | 0 | 0 | 26 | 1 | 0 | 15 | 0 | 0 | 0 | 384 | 0 | 0 | 0 | 0 | 60,450 | 60,450 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 381 | 381 |
| 405888 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 509 | 957 |
| 406001 | 0 | 0 | 0 | 0 | 0 | 91,019 | 0 | 0 | 0 | 1,576 | 0 | 0 | 0 | 0 | 82,286 | 82,970 |
| 406002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 19,730 | 20,516 |
| 406003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 5,215 | 5,215 |
| 406004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 8,043 | 8,043 |
| 406888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,855 | 2,855 |
| 490001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,920 | 2,633 |
| 490999 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 404 | 0 | 0 | 0 | 0 | 86,421 | 118,510 |
| 501001 | 4,828 | 8 | 4,303 | 759 | 130 | 52,619 | 1,860 | 0 | 0 | 11,377 | 65 | 16 | 65 | 55 | 1,189 | 6,062 |
| 501002 | 255 | 0 | 1,347 | 238 | 0 | 23,531 | 0 | 0 | 0 | 4,450 | 23 | 6 | 23 | 20 | 11,442 | 11,442 |
| 501005 | 346 | 0 | 1,235 | 218 | 2 | 1,804 | 24 | 0 | 0 | 5,414 | 1 | 0 | 1 | 0 | 66 | 368 |
| 501900 | 1,033 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 | 2 |
| 501999 | 5 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 5 | 5 |
| 502001 | 1,906 | 4 | 1,533 | 271 | 72 | 13,200 | 1,909 | 0 | 0 | 1,667 | 9 | 2 | 9 | 8 | 1,116 | 2,400 |
| 502002 | 0 | 0 | 12 | 2 | 0 | 523 | 0 | 0 | 0 | 64 | 0 | 0 | 0 | 1 | 31 | 161 |
| 502003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 1,706 | 11 | 9,09[illegible] | 1,605 | 21 | 0 | 0 | 0 | 0 | 1,745 | 0 | 0 | 0 | 0 | 347 | 2,052 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 502900 | 485 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 113 | 0 | 0 | 0 | 0 | 75 | 170 |
| 503001 | 15,967 | 4 | 6,051 | 1,068 | 84 | 198,278 | 2.804 | 0 | 0 | 17,476 | 0 | 0 | 0 | 0 | 4,989 | 25,435 |
| 503002 | 57 | 0 | 514 | 91 | 0 | 20,332 | 0 | 0 | 0 | 1,601 | 0 | 0 | 0 | 0 | 3,849 | 6,685 |
| 503005 | 794 | 2 | 2,074 | 366 | 4 | 318 | 0 | 0 | 0 | 14,633 | 0 | 0 | 0 | 0 | 73 | 432 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503900 | 1,088 | 0 | 622 | 110 | 0 | 2,080 | 0 | 0 | 0 | 534 | 0 | 0 | 0 | 0 | 165 | 839 |
| 599999 | 142 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 89 |
| U.S. TOTAL | 22,230,755 | 658,038 | 8,423,019 | 325,222 | 6,981 | 8,281,040 | 471,429 | 102,680 | 222,688 | 3,959,255 | 103,247 | 29,053 | 11,771 | 14,038 | 3,595,476 | 4,224,879 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 101002 | 0 | 16,754 | 9,574 | 4,069 | 0 | 0 | 4,069 | 44,995 | 0 | 0 | 0 | 32,789 |
| 101003 | 0 | 1,311 | 749 | 318 | 0 | 0 | 318 | 3,522 | 0 | 0 | 0 | 2,567 |
| 101004 | 88,645 | 0 | 0 | 31,142 | 0 | 0 | 0 | 7,495 | 0 | 0 | 0 | 0 |
| 101005 | 0 | 0 | 11 | 85 | 29 | 26 | 0 | 135 | 0 | 0 | 0 | 0 |
| 101006 | 98,052 | 0 | 2,556 | 4,354 | 0 | 2,331 | 0 | 4,157 | 0 | 0 | 0 | 0 |
| 102001 | 482 | 2 | 14 | 22 | 0 | 11 | 0 | 26 | 0 | 0 | 0 | 4 |
| 102002 | 0 | 4,187 | 2,393 | 1,017 | 0 | 0 | 1,017 | 11,246 | 0 | 0 | 0 | 8,195 |
| 102003 | 0 | 86 | 49 | 21 | 0 | 0 | 21 | 230 | 0 | 0 | 0 | 168 |
| 102004 | 351,502 | 0 | 0 | 123,487 | 0 | 0 | 0 | 29,719 | 0 | 0 | 0 | 0 |
| 102005 | 0 | 0 | 3,926 | 30,537 | 10,324 | 9,452 | 0 | 48,277 | 0 | 0 | 0 | 0 |
| 102006 | 921,908 | 0 | 24,031 | 40,933 | 0 | 21,919 | 0 | 39,084 | 0 | 0 | 0 | 0 |
| 102007 | 84,333 | 66,268 | 40,512 | 37,490 | 7,177 | 0 | 0 | 238 | 3,197 | 39,338 | 0 | 0 |
| 102008 | 0 | 192 | 110 | 47 | 0 | 0 | 47 | 515 | 0 | 0 | 0 | 375 |
| 102009 | 0 | 40,506 | 23,146 | 9,837 | 0 | 0 | 9,837 | 108,788 | 0 | 0 | 0 | 79,276 |
| 102010 | 689 | 0 | 18 | 31 | 0 | 16 | 0 | 29 | 0 | 0 | 0 | 0 |
| 102011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42,762 | 0 | 0 | 0 | 0 |
| 102012 | 0 | 14 | 8 | 3 | 0 | 0 | 3 | 38 | 0 | 0 | 0 | 27 |
| 102013 | 0 | 0 | 16 | 123 | 41 | 38 | 0 | 194 | 0 | 0 | 0 | 0 |
| 103001 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 4 |
| 103002 | 0 | 616 | 352 | 150 | 0 | 0 | 150 | 1,654 | 0 | 0 | 0 | 1,206 |
| 103003 | 0 | 19 | 11 | 5 | 0 | 0 | 5 | 51 | 0 | 0 | 0 | 37 |
| 103004 | 9,463 | 0 | 0 | 3,325 | 0 | 0 | 0 | 800 | 0 | 0 | 0 | 0 |
| 103005 | 0 | 0 | 215 | 1,671 | 565 | 517 | 0 | 2,642 | 0 | 0 | 0 | 0 |
| 103006 | 84,487 | 0 | 2,202 | 3,751 | 0 | 2,009 | 0 | 3,582 | 0 | 0 | 0 | 0 |
| 103009 | 0 | 601 | 343 | 146 | 0 | 0 | 146 | 1,613 | 0 | 0 | 0 | 1,176 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103013 | 0 | 0 | 1 | 11 | 4 | 3 | 0 | 18 | 0 | 0 | 0 | 0 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 98,396 | 0 | 3,080 | 8,376 | 1,355 | 3,580 | 0 | 10,506 | 0 | 0 | 0 | 0 |
| 105002 | 0 | 0 | 53 | 416 | 141 | 129 | 0 | 658 | 0 | 0 | 0 | 0 |
| 199999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,977 | 0 | 0 | 0 | 0 |
| 201001 | 15,204 | 1,956 | 0 | 0 | 0 | 0 | 0 | 9,127 | 21,513 | 8,643 | 0 | 7,739 |
| 201002 | 307,687 | 5,093 | 3,472 | 260 | 260 | 0 | 0 | 0 | 551 | 0 | 0 | 0 |
| 202001 | 11,623 | 1,495 | 0 | 0 | 0 | 0 | 0 | 6,977 | 16,445 | 6,607 | 0 | 5,916 |
| 202002 | 3,570,313 | 261,777 | 164,815 | 12,343 | 12,343 | 0 | 0 | 0 | 26,138 | 0 | 0 | 0 |
| 202003 | 2,099 | 270 | 0 | 0 | 0 | 0 | 0 | 1,260 | 2,970 | 1,193 | 0 | 1,068 |
| 202004 | 131 | 17 | 0 | 0 | 0 | 0 | 0 | 79 | 186 | 75 | 0 | 67 |
| 203001 | 144 | 19 | 0 | 0 | 0 | 0 | 0 | 87 | 204 | 82 | 0 | 73 |
| 203002 | 3,126 | 220 | 150 | 11 | 11 | 0 | 0 | 0 | 24 | 0 | 0 | 0 |
| 204001 | 23,404 | 1,645 | 1,121 | 84 | 84 | 0 | 0 | 0 | 178 | 0 | 0 | 0 |
| 204004 | 2,834 | 364 | 0 | 0 | 0 | 0 | 0 | 1,701 | 4,009 | 1,611 | 0 | 1,442 |
| 299999 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 9 | 4 | 0 | 3 |
| 301001 | 0 | 0 | 14,214 | 33,823 | 0 | 0 | 0 | 54,339 | 19,025 | 5,287 | 0 | 7,511 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 161,350 | 2,384 | 662 | 0 | 941 |
| 301005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,018,211 | 1,263,935 | 351,275 | 0 | 499,008 |
| 301006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 484,949 | 660,904 | 183,680 | 0 | 260,928 |
| 301007 | 234 | 47 | 0 | 0 | 0 | 0 | 0 | 3,751 | 3,486 | 1,054 | 0 | 1,460 |
| 301008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,904 | 0 | 0 | 0 | 0 |
| 301009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,070 | 4,184 | 1,163 | 0 | 1,652 |
| 301010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,533 | 0 | 0 | 0 | 0 |
| 301011 | 3,030 | 0 | 72 | 135 | 0 | 72 | 0 | 128 | 0 | 0 | 0 | 0 |
| 301012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301013 | 0 | 0 | [illegible] | 0 | 0 | 0 | 0 | 7,640 | 10,413 | 2,094 | 0 | 4,111 |
| 301014 | 0 | 0 | [illegible] | 0 | 0 | 0 | 0 | 6,972 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Methane | Ethane | Propene | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,593 | 0 | 0 | 0 | 0 |
| 301016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 116 | 0 | 0 | 0 | 0 |
| 301018 | 33,822 | 6,850 | 0 | 0 | 0 | 0 | 0 | 266,770 | 92,904 | 697,171 | 0 | 427,871 |
| 301019 | 83,036 | 216 | 333 | 633 | 117 | 0 | 0 | 4,997 | 0 | 1,232 | 0 | 0 |
| 301020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,712 | 0 | 0 | 0 | 0 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,300 | 0 | 0 | 0 | 0 |
| 301022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 45 | 9 | 0 | 0 | 0 | 0 | 0 | 319 | 123 | 50 | 0 | 65 |
| 301024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81,089 | 0 | 0 | 0 | 122,799 |
| 301025 | 15,924 | 3,225 | 0 | 0 | 0 | 0 | 0 | 113,483 | 43,740 | 17,940 | 0 | 22,979 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 860,875 | 0 | 0 | 0 | 0 |
| 301027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 475 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 338 | 0 | 0 | 0 | 0 |
| 301031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 616,954 | 0 | 0 | 0 | 0 |
| 301032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,813 | 0 | 0 | 0 | 0 |
| 301033 | 0 | 0 | 1,019 | 1,888 | 596 | 1,093 | 0 | 13,418 | 0 | 0 | 0 | 0 |
| 301034 | 1,412 | 286 | 0 | 0 | 0 | 0 | 0 | 17,880 | 3,878 | 1,591 | 0 | 2,037 |
| 301035 | 103 | 0 | 3 | 5 | 0 | 2 | 0 | 20 | 22 | 6 | 0 | 9 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301041 | 2,375 | 481 | 0 | 0 | 0 | 0 | 0 | 16,925 | 6,524 | 2,676 | 0 | 3,427 |
| 301042 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,352 | 0 | 0 | 0 | 0 |
| 301050 | 868 | 176 | 0 | 0 | 0 | 0 | 0 | 6,183 | 2,383 | 977 | 0 | 1,252 |
| 301060 | 1,064 | 216 | 0 | 0 | 0 | 0 | 0 | 8,112 | 2,923 | 1,199 | 0 | 1,536 |
| 301091 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,409 | 0 | 0 | 0 | 0 |
| 301100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,617 | 0 | 0 | 0 | 0 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301120 | 0 | 0 | 109 | 850 | 288 | 263 | 0 | 10,872 | 0 | 0 | 0 | 0 |
| 301125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,679 | 0 | 0 | 0 | 0 |
| 301130 | 5,577 | 0 | 145 | 248 | 0 | 133 | 0 | 1,017 | 0 | 0 | 0 | 0 |
| 301132 | 3,128 | 633 | 0 | 0 | 0 | 0 | 0 | 25,285 | 8,591 | 3,523 | 0 | 4,513 |
| 301137 | 236 | 48 | 0 | 0 | 0 | 0 | 0 | 1,685 | 649 | 266 | 0 | 341 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,372 | 0 | 0 | 0 | 0 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,445 | 0 | 0 | 0 | 0 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,009 | 0 | 0 | 0 | 0 |
| 301174 | 1,812 | 246 | 0 | 0 | 0 | 0 | 0 | 8,640 | 3,330 | 1,366 | 0 | 1,750 |
| 301181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,045 | 0 | 0 | 0 | 0 |
| 301197 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 242,699 | 0 | 0 | 0 | 0 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,762 | 0 | 0 | 0 | 0 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,486 | 0 | 0 | 0 | 0 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,052 | 1,231 | 342 | 0 | 486 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,540 | 0 | 0 | 0 | 0 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,118 | 0 | 0 | 0 | 0 |
| 301254 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,141 | 0 | 0 | 0 | 0 |
| 301258 | 1,773 | 359 | 0 | 0 | 0 | 0 | 0 | 22,535 | 4,871 | 1,998 | 0 | 2,559 |
| 301820 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,572 | 0 | 0 | 0 | 0 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301888 | 340 | 69 | 0 | 0 | 0 | 0 | 0 | 2,432 | 933 | 383 | 0 | 490 |
| 301900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,339 | 4,551 | 1,265 | 0 | 1,797 |
| 301999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,083,300 | 1,476,356 | 410,312 | 0 | 582,873 |
| 302001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 302002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 945 | 0 | 0 | 0 | 0 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302007 | 355,417 | 0 | 247 | 247 | 123 | 185 | 0 | 7,011 | 3,025 | 617 | 0 | 1,543 |
| 302008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| 302009 | 99,927 | 0 | 69 | 69 | 35 | 52 | 0 | 5,724 | 851 | 174 | 0 | 434 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 473,357 | 0 | 0 | 0 | 0 |
| 302012 | 17,570 | 0 | 12 | 12 | 6 | 9 | 0 | 113 | 150 | 31 | 0 | 76 |
| 302013 | 0 | 545 | 311 | 132 | 0 | 0 | 132 | 1,463 | 0 | 0 | 0 | 1,066 |
| 302014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 | 0 | 0 | 0 | 0 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302018 | 12,393 | 0 | 9 | 9 | 4 | 6 | 0 | 80 | 105 | 22 | 0 | 54 |
| 302019 | 531,844 | 0 | 370 | 370 | 185 | 277 | 0 | 3,418 | 4,527 | 924 | 0 | 2,310 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302032 | 2,981 | 0 | 2 | 2 | 1 | 2 | 0 | 19 | 25 | 5 | 0 | 13 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,184 | 0 | 0 | 0 | 0 |
| 302888 | 8,314 | 0 | 6 | 6 | 3 | 4 | 0 | 85 | 71 | 14 | 0 | 36 |
| 302999 | 252,771 | 0 | 176 | 176 | 88 | 132 | 0 | 1,625 | 2,151 | 439 | 0 | 1,098 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 847,949 | 79,871 | 3,303 | 0 | 0 | 0 | 0 | 13,812 | 296,662 | 13,512 | 0 | 3,303 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 |
| 303003 | 1,789,843 | 168,590 | 6,972 | 0 | 0 | 0 | 0 | 29,155 | 626,192 | 28,521 | 0 | 6,972 |
| 303004 | 2,203 | 208 | 9 | 0 | 0 | 0 | 0 | 36 | 771 | 35 | 0 | 9 |
| 303005 | 179 | 0 | 0 | 0 | 0 | 0 | 0 | 164 | 0 | 0 | 0 | 0 |
| 303006 | 197 | 0 | 0 | 0 | 0 | 0 | 0 | 180 | 0 | 0 | 0 | 0 |
| 303007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 731,590 | 16,053 | 10 | 1 | 0 | 1 | 0 | 91,835 | 33,915 | 11,337 | 0 | 13 |
| 303009 | 9,438 | 445 | 1,182 | 3 | 0 | 3 | 0 | 37,057 | 1,632 | 109 | 0 | 43 |
| 303010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 770 | 0 | 0 | 0 | 0 |
| 303012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,505 | 0 | 0 | 0 | 0 |
| 303023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 154 | 14 | 1 | 0 | 0 | 0 | 0 | 3 | 54 | 2 | 0 | 1 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 6,260 | 326 | 24 | 2 | 0 | 2 | 0 | 190 | 1,195 | 80 | 0 | 32 |
| 304001 | 119,749 | 0 | 2,512 | 6,856 | 1,099 | 2,983 | 0 | 16,120 | 0 | 0 | 0 | 0 |
| 304002 | 5,819 | 0 | 122 | 333 | 53 | 145 | 0 | 783 | 0 | 0 | 0 | 0 |
| 304003 | 136,346 | 7,093 | 527 | 41 | 0 | 41 | 0 | 4,134 | 26,021 | 1,743 | 0 | 689 |
| 304004 | 107,958 | 0 | 2,265 | 6,181 | 991 | 2,690 | 0 | 14,533 | 0 | 0 | 0 | 0 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304007 | 7,756 | 403 | 30 | 2 | 0 | 2 | 0 | 235 | 1,480 | 99 | 0 | 39 |
| 304008 | 127 | 0 | 3 | 7 | 1 | 3 | 0 | 17 | 0 | 0 | 0 | 0 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 851 | 1,159 | 322 | 0 | 458 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR<br>Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 304022 | 6,755 | 0 | 142 | 387 | 62 | 168 | 0 | 909 | 0 | 0 | 0 | 0 |
| 304034 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 15,636 | 0 | 328 | 895 | 144 | 390 | 0 | 2,105 | 0 | 0 | 0 | 0 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| 304999 | 18,470 | 0 | 387 | 1,057 | 170 | 460 | 0 | 2,486 | 0 | 0 | 0 | 0 |
| 305001 | 0 | 190 | 1,694 | 1,780 | 792 | 1,430 | 0 | 20,507 | 408 | 0 | 0 | 0 |
| 305002 | 44,585 | 0 | 1,162 | 1,980 | 0 | 1,060 | 0 | 1,890 | 0 | 0 | 0 | 0 |
| 305003 | 49,586 | 375 | 1,098 | 2,004 | 537 | 968 | 7 | 2,545 | 313 | 194 | 0 | 270 |
| 305004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,229 | 0 | 0 | 0 | 0 |
| 305005 | 1,459 | 5 | 34 | 57 | 6 | 30 | 0 | 59 | 5 | 3 | 0 | 3 |
| 305006 | 2,993 | 0 | 0 | 1,052 | 0 | 0 | 0 | 306 | 0 | 0 | 0 | 0 |
| 305007 | 3,395 | 4 | 4 | 1,109 | 5 | 2 | 0 | 275 | 4 | 2 | 0 | 2 |
| 305008 | 3,286 | 51 | 48 | 73 | 61 | 32 | 0 | 115 | 46 | 28 | 0 | 32 |
| 305009 | 1,005 | 16 | 15 | 20 | 19 | 10 | 0 | 35 | 14 | 9 | 0 | 10 |
| 305010 | 0 | 1,471 | 840 | 357 | 0 | 0 | 357 | 3,950 | 0 | 0 | 0 | 2,878 |
| 305011 | 574 | 9 | 8 | 12 | 11 | 6 | 0 | 20 | 8 | 5 | 0 | 6 |
| 305012 | 151,073 | 2,340 | 2,225 | 3,031 | 2,839 | 1,458 | 0 | 5,256 | 2,110 | 1,304 | 0 | 1,458 |
| 305013 | 7,534 | 117 | 111 | 151 | 142 | 73 | 0 | 262 | 105 | 65 | 0 | 73 |
| 305014 | 186,039 | 2,401 | 3,092 | 4,487 | 2,913 | 2,233 | 0 | 6,708 | 2,165 | 1,338 | 0 | 1,496 |
| 305015 | 179 | 7 | 5 | 5 | 3 | 2 | 1 | 16 | 3 | 2 | 0 | 9 |
| 305016 | 0 | 655 | 374 | 159 | 0 | 0 | 159 | 1,758 | 0 | 0 | 0 | 1,281 |
| 305017 | 1,619 | 0 | 34 | 93 | 15 | 40 | 0 | 218 | 0 | 0 | 0 | 0 |
| 305018 | 5,023 | 78 | 74 | 101 | 94 | 48 | 0 | 175 | 70 | 43 | 0 | 48 |
| 305019 | 34 | 0 | 1 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 305020 | 6,099 | 94 | 90 | 122 | 115 | 59 | 0 | 212 | 85 | 53 | 0 | 59 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 36 | 1 | 1 | 1 | 1 | 0 | 0 | 12 | 1 | 0 | 0 | 0 |
| 305026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 96,542 | 1,495 | 1,422 | 1,937 | 1,814 | 932 | 0 | 3,359 | 1,348 | 834 | 0 | 932 |
| 305040 | 4,124 | 63 | 61 | 84 | 77 | 40 | 0 | 144 | 57 | 35 | 0 | 39 |
| 305100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,836 | 0 | 0 | 0 | 0 |
| 305999 | 220,313 | 3,413 | 3,245 | 4,420 | 4,140 | 2,126 | 0 | 7,665 | 3,077 | 1,902 | 0 | 2,126 |
| 306001 | 289,960 | 0 | 7,104 | 18,222 | 0 | 6,480 | 0 | 13,027 | 0 | 0 | 0 | 0 |
| 306002 | 2,014,467 | 0 | 0 | 0 | 0 | 0 | 0 | 135,555 | 0 | 0 | 0 | 0 |
| 306003 | 72,956 | 0 | 0 | 0 | 0 | 0 | 0 | 4,909 | 0 | 0 | 0 | 0 |
| 306004 | 7,972 | 76,726 | 86,263 | 55,374 | 50,676 | 427 | 0 | 27,408 | 18,341 | 5,097 | 0 | 7,241 |
| 306005 | 184,509 | 58,105 | 136,598 | 250,769 | 78,493 | 169,218 | 0 | 650,367 | 0 | 0 | 0 | 0 |
| 306006 | 424,946 | 12,144 | 28,549 | 52,412 | 16,405 | 35,367 | 0 | 161,930 | 0 | 0 | 0 | 0 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86,143 | 0 | 0 | 0 | 0 |
| 306008 | 493,389 | 84,802 | 267,529 | 204,879 | 70,901 | 111,250 | 0 | 386,277 | 0 | 27,257 | 0 | 1,952 |
| 306009 | 131,456 | 105,207 | 71,790 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,971 | 0 | 0 | 0 | 0 |
| 306011 | 30,648 | 294,983 | 331,650 | 212,891 | 194,831 | 1,642 | 0 | 53,633 | 0 | 0 | 0 | 0 |
| 306012 | 61,323 | 0 | 0 | 0 | 0 | 0 | 0 | 4,126 | 0 | 0 | 0 | 0 |
| 306014 | 16,973 | 0 | 442 | 754 | 0 | 404 | 0 | 720 | 0 | 0 | 0 | 0 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,500 | 0 | 0 | 0 | 0 |
| 306888 | 430,702 | 46,621 | 63,047 | 76,091 | 30,678 | 25,847 | 0 | 91,761 | 662 | 667 | 0 | 262 |
| 306999 | 885,084 | 95,806 | 129,563 | 156,367 | 63,043 | 53,115 | 0 | 113,180 | 0 | 993 | 0 | 0 |
| 307001 | 9,571 | 0 | [illegible] | 425 | 0 | 228 | 0 | 120,473 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 307002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,501 | 0 | 0 | 0 | 0 |
| 307003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,857 | 0 | 0 | 0 | 0 |
| 307004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,758 | 0 | 0 | 0 | 0 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,574 | 0 | 0 | 0 | 0 |
| 307007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69,202 | 0 | 0 | 0 | 0 |
| 307008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,289 | 0 | 0 | 0 | 0 |
| 307011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52,439 | 0 | 0 | 0 | 4,620 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,656 | 0 | 0 | 0 | 0 |
| 307020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48,312 | 0 | 0 | 0 | 0 |
| 307030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,994 | 0 | 0 | 0 | 0 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,533 | 0 | 0 | 0 | 0 |
| 307999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17,061 | 0 | 0 | 0 | 0 |
| 308001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101,220 | 3,096 | 861 | 0 | 1,222 |
| 308006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,756 | 0 | 0 | 0 | 0 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,882 | 0 | 0 | 0 | 0 |
| 309001 | 15,307 | 0 | 321 | 876 | 140 | 381 | 0 | 2,061 | 0 | 0 | 0 | 0 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0. | 0 |
| 309010 | 43,315 | 25 | 751 | 1,101 | 100 | 851 | 0 | 5,930 | 0 | 2,352 | 0 | 2,077 |
| 309011 | 1,057 | 1 | 18 | 27 | 2 | 21 | 0 | 145 | 0 | 57 | 0 | 51 |
| 309020 | 145,935 | 0 | 3,062 | 8,356 | 1,339 | 3,636 | 0 | 19,645 | 0 | 0 | 0 | 0 |
| 309030 | 16,408 | 9 | 284 | 417 | 38 | 322 | 0 | 2,246 | 0 | 891 | 0 | 787 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309888 | 1,507 | 1 | 26 | 38 | 3 | 30 | 0 | 206 | 0 | 82 | 0 | 72 |
| 309999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25,009 | 0 | 0 | 0 | 0 |
| 310001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138,626 | 0 | 0 | 0 | 0 |
| 310002 | 870 | 1,276 | 788 | 729 | 140 | 0 | 0 | 3,382 | 4,609 | 2,045 | 0 | 1,820 |
| 312999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,277 | 0 | 0 | 0 | 0 |
| 330001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 174,990 | 0 | 0 | 0 | 0 |
| 330002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,266 | 0 | 0 | 0 | 2,050 |
| 330003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 641 | 0 | 0 | 0 | 0 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 992 | 0 | 0 | 0 | 0 |
| 390001 | 0 | 4 | 2 | 1 | 0 | 0 | 1 | 10 | 0 | 0 | 0 | 7 |
| 390002 | 0 | 431 | 246 | 105 | 0 | 0 | 105 | 1,156 | 0 | 0 | 0 | 843 |
| 390004 | 11,985 | 0 | 0 | 4,210 | 0 | 0 | 0 | 1,066 | 0 | 0 | 0 | 0 |
| 390005 | 0 | 0 | 211 | 1,638 | 554 | 507 | 0 | 2,589 | 0 | 0 | 0 | 0 |
| 390006 | 804,971 | 0 | 20,983 | 35,741 | 0 | 19,139 | 0 | 34,928 | 0 | 0 | 0 | 0 |
| 390007 | 9,300 | 171 | 0 | 0 | 0 | 0 | 0 | 21 | 365 | 478 | 0 | 416 |
| 390008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 0 | 0 | 0 | 0 |
| 390009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,372 | 0 | 0 | 0 | 0 |
| 390010 | 54,397 | 0 | 1,418 | 2,415 | 0 | 1,293 | 0 | 2,306 | 0 | 0 | 0 | 0 |
| 390012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 6,509,452 | 0 | 169,682 | 289,019 | 0 | 154,765 | 0 | 275,966 | 0 | 0 | 0 | 0 |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24,026 | 0 | 0 | 0 | 21,745 |
| 401002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 444,264 | 0 | 0 | 0 | 182,616 |
| 401003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,652 | 0 | 0 | 0 | 697 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,181 | 0 | 0 | 0 | 0 |
| 401913 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 499 | 0 | 0 | 0 | 181 |
| 402001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 402002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,446 | 0 | 0 | 0 | 0 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,809 | 0 | 0 | 0 | 0 |
| 402004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 633,899 | 0 | 0 | 0 | 0 |
| 402005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 776,024 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 402006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 507,062 | 0 | 0 | 0 | 0 |
| 402007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 402008 | 2,110,984 | 83,266 | 35,503 | 202,257 | 0 | 503 | 0 | 26,544 | 35,614 | 3,185 | 0 | 2,794 |
| 402009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,420,862 | 0 | 0 | 0 | 65,089 |
| 402010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 402011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,911 | 0 | 0 | 0 | 1,049 |
| 402013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101,923 | 0 | 0 | 0 | 8,953 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,087 | 0 | 0 | 0 | 0 |
| 402016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,179 | 0 | 0 | 0 | 41 |
| 402017 | 11,992 | 1,696 | 383 | 1,011 | 158 | 0 | 0 | 191,840 | 0 | 0 | 0 | 16,679 |
| 402018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,025 | 0 | 0 | 0 | 0 |
| 402019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,546 | 0 | 0 | 0 | 0 |
| 402020 | 2,327 | 79 | 36 | 199 | 0 | 44 | 0 | 2,713 | 32 | 28 | 0 | 24 |
| 402021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 865 | 0 | 0 | 0 | 76 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,387 | 0 | 0 | 0 | 0 |
| 402023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,514 | 0 | 0 | 0 | 133 |
| 402024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 0 | 0 | 0 | 0 |
| 402025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,225 | 0 | 0 | 0 | 901 |
| 402888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 179,719 | 0 | 0 | 0 | 15,834 |
| 402901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 395 | 0 | 0 | 0 | 35 |
| 402999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 730,657 | 0 | 0 | 0 | 0 |
| 403001 | 369,250 | 85,681 | 268,896 | 299,232 | 96,006 | 227,088 | 0 | 603,329 | 0 | 0 | 0 | 29,858 |
| 403002 | 29,086 | 4,768 | 20,447 | 40,042 | 13,468 | 101,146 | 0 | 243,284 | 0 | 0 | 0 | 23,848 |
| 403003 | 0 | 888 | 13,470 | 896 | 232 | 3,986 | 0 | 9,506 | 0 | 790 | 0 | 1,014 |
| 403010 | 34,555 | 5,665 | 23,413 | 30,887 | 12,049 | 45,965 | 0 | 171,062 | 0 | 0 | 0 | 9,453 |
| 403011 | 10,478 | 1,718 | 7,500 | 18,076 | 5,716 | 52,617 | 0 | 127,376 | 1 | 0 | 0 | 12,751 |
| 403012 | 0 | 0 | 420 | 7,985 | 1,891 | 35,513 | 0 | 86,150 | 0 | 0 | 0 | 9,036 |
| 403888 | 4,683 | 773 | 1,246 | 3,695 | 1,506 | 2,105 | 0 | 25,306 | 43 | 0 | 0 | 1,633 |
| 403999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 163,416 | 0 | 0 | 0 | 0 |
| 404001 | 0 | 0 | 2,067 | 39,276 | 9,302 | 174,674 | 0 | 416,530 | 0 | 0 | 0 | 44,444 |
| 404002 | 0 | 0 | 40 | 760 | 180 | 3,381 | 0 | 8,062 | 0 | 0 | 0 | 860 |
| 405001 | 3,955,033 | 214,208 | 62,516 | 47,806 | 15,629 | 0 | 0 | 0 | 425,658 | 65,274 | 0 | 16,548 |
| 405002 | 590,099 | 31,960 | 9,327 | 7,133 | 2,332 | 0 | 0 | 294 | 63,509 | 9,739 | 0 | 2,469 |
| 405003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 222,941 | 0 | 0 | 0 | 0 |
| 405004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290,493 | 0 | 0 | 0 | 0 |
| 405005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485,486 | 0 | 0 | 0 | 921 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 405888 | 23,059 | 2,602 | 622 | 1,387 | 230 | 0 | 0 | 565 | 431 | 3,244 | 0 | 1,665 |
| 406001 | 36,371 | 3,350 | 7,617 | 33,196 | 9,065 | 124,717 | 0 | 348,213 | 5 | 0 | 0 | 31,174 |
| 406002 | 32,211 | 8,985 | 31,242 | 40,962 | 8,531 | 34,435 | 0 | 78,243 | 0 | 0 | 0 | 4,573 |
| 406003 | 0 | 0 | 104 | 1,982 | 469 | 8,813 | 0 | 21,015 | 0 | 0 | 0 | 2,242 |
| 406004 | 0 | 0 | 161 | 3,056 | 724 | 13,593 | 0 | 32,414 | 0 | 0 | 0 | 3,459 |
| 406888 | 0 | 0 | 57 | 1,085 | 257 | 4,825 | 0 | 11,505 | 0 | 0 | 0 | 1,228 |
| 490001 | 37,779 | 3,554 | 869 | 1,685 | 316 | 0 | 0 | 17,007 | 2,185 | 342 | 0 | 79 |
| 490999 | 1,700,609 | 159,988 | 39,108 | 75,846 | 14,221 | 0 | 0 | 765,570 | 98,363 | 15,406 | 0 | 3,555 |
| 501001 | 300,610 | 1,697 | 1,031 | 1,879 | 364 | 0 | 0 | 8,365 | 3,880 | 3,758 | 0 | 121 |
| 501002 | 0 | 0 | 4,920 | 3,776 | 3,776 | 2,975 | 0 | 56,522 | 79,176 | 0 | 0 | 50,572 |
| 501005 | 18,397 | 257 | 20 | 37 | 7 | 0 | 0 | 165 | 847 | 104 | 0 | 2 |
| 501900 | 90 | 1 | 0 | 1 | 0 | 0 | 0 | 3 | 1 | 1 | 0 | 0 |
| 501999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 0 | 0 | 0 |
| 502001 | 78,314 | 1,006 | 469 | 477 | 316 | 216 | 0 | 5,009 | 9,005 | 516 | 0 | 3,686 |
| 502002 | 7,963 | 45 | [illegible] | 50 | 10 | 0 | 0 | 222 | 103 | 100 | 0 | 3 |
| 502003 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 102,851 | 1,847 | | 0 | 0 | 0 | 0 | 0 | 6,361 | 246 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| 502900 | 5,922 | 0 | 154 | 263 | 0 | 141 | 0 | 251 | 0 | 0 | 0 | 0 |
| 503001 | 1,261,330 | 7,122 | 4,324 | 7,885 | 1,526 | 0 | 0 | 35,101 | 16,279 | 15,770 | 0 | 509 |
| 503002 | 174,959 | 988 | 1,957 | 2,136 | 1,254 | 821 | 0 | 20,465 | 24,105 | 2,187 | 0 | 14,025 |
| 503005 | 21,643 | 389 | 0 | 0 | 0 | 0 | 0 | 0 | 1,339 | 52 | 0 | 0 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503900 | 41,614 | 235 | 143 | 260 | 50 | 0 | 0 | 1,158 | 537 | 520 | 0 | 17 |
| 599999 | 4,409 | 25 | 15 | 28 | 5 | 0 | 0 | 123 | 57 | 55 | 0 | 2 |
| U.S. TOTAL | 35,336,921 | 2,081,710 | 2,192,169 | 2,639,566 | 756,840 | 1,482,177 | 16,375 | 19,086,558 | 5,497,167 | 1,971,765 | 0 | 2,733,450 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 101002 | 0 | 14,600 | 107,941 | 25,370 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101003 | 0 | 1,143 | 8,449 | 1,986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101004 | 0 | 0 | 0 | 0 | 0 | 180,650 | 0 | 0 | 62,284 | 0 | 0 |
| 101005 | 0 | 0 | 0 | 0 | 0 | 660 | 0 | 0 | 0 | 0 | 0 |
| 101006 | 1,461 | 618 | 0 | 0 | 0 | 7,499 | 0 | 0 | 0 | 0 | 0 |
| 102001 | 7 | 5 | 12 | 3 | 0 | 37 | 0 | 0 | 0 | 0 | 0 |
| 102002 | 0 | 3,649 | 26,979 | 6,341 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102003 | 0 | 75 | 552 | 130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 0 | 0 | 0 | 0 | 0 | 716,326 | 0 | 0 | 246,974 | 0 | 0 |
| 102005 | 0 | 0 | 0 | 0 | 0 | 235,858 | 0 | 0 | 0 | 0 | 0 |
| 102006 | 13,732 | 5,810 | 0 | 0 | 0 | 70,510 | 0 | 0 | 0 | 0 | 0 |
| 102007 | 184 | 0 | 0 | 0 | 0 | 23,892 | 0 | 0 | 0 | 0 | 0 |
| 102008 | 0 | 167 | 1,236 | 290 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102009 | 0 | 35,298 | 260,975 | 61,338 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102010 | 10 | 4 | 0 | 0 | 0 | 53 | 0 | 0 | 0 | 0 | 0 |
| 102011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102012 | 0 | 12 | 90 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102013 | 0 | 0 | 0 | 0 | 0 | 947 | 0 | 0 | 0 | 0 | 0 |
| 103001 | 0 | 2 | 12 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103002 | 0 | 537 | 3,969 | 933 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103003 | 0 | 17 | 123 | 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103004 | 0 | 0 | 0 | 0 | 0 | 19,285 | 0 | 0 | 6,649 | 0 | 0 |
| 103005 | 0 | 0 | 0 | 0 | 0 | 12,907 | 0 | 0 | 0 | 0 | 0 |
| 103006 | 1,258 | 532 | 0 | 0 | 0 | 6,462 | 0 | 0 | 0 | 0 | 0 |
| 103009 | 0 | 524 | 3,871 | 910 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103013 | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 0 | 0 | 0 | 0 |
| 103900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 1,466 | 620 | 0 | 0 | 0 | 38,474 | 0 | 0 | 0 | 0 | 0 |
| 105002 | 0 | 0 | 0 | 0 | 0 | 3,212 | 0 | 0 | 0 | 0 | 0 |
| 199999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 2,124 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201002 | 0 | 0 | 0 | 0 | 0 | 54,365 | 0 | 0 | 0 | 0 | 0 |
| 202001 | 1,624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 202002 | 0 | 0 | 0 | 0 | 0 | 54,502 | 0 | 0 | 0 | 0 | 0 |
| 202003 | 293 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 202004 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 203001 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 203002 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 |
| 204001 | 0 | 0 | 0 | 0 | 0 | 168 | 0 | 0 | 0 | 0 | 0 |
| 204004 | 396 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 299999 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301001 | 3,163 | 1,087 | 296 | 0 | 1,334 | 1,408 | 395 | 272 | 0 | 0 | 148 |
| 301003 | 396 | 136 | 37 | 0 | 167 | 176 | 50 | 34 | 0 | 0 | 19 |
| 301005 | 210,109 | 72,225 | 19,698 | 0 | 88,640 | 93,564 | 26,264 | 18,056 | 0 | 0 | 9,849 |
| 301006 | 109,865 | 37,766 | 10,300 | 0 | 46,349 | 48,924 | 13,733 | 9,441 | 0 | 0 | 5,150 |
| 301007 | 594 | 236 | 68 | 0 | 244 | 258 | 74 | 50 | 1,091 | 53 | 49 |
| 301008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301009 | 695 | 239 | 65 | 0 | 293 | 310 | 87 | 60 | 0 | 0 | 33 |
| 301010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301011 | 45 | 19 | 0 | 0 | 0 | 232 | 0 | 0 | 0 | 0 | 0 |
| 301012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301013 | 1,731 | 595 | 162 | 0 | 730 | 771 | 216 | 149 | 0 | 0 | 81 |
| 301014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96,732 | 108,061 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 301015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,980 | 40,194 | 0 |
| 301016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301018 | 17,553 | 10,703 | 3,425 | 0 | 6,422 | 6,850 | 2,141 | 1,284 | 157,980 | 7,706 | 3,853 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,464 | 0 | 0 |
| 301020 | 0 | 0 | 0 | 449 | 417 | 0 | 0 | 0 | 1,525 | 1,107 | 546 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 23 | 14 | 5 | 0 | 9 | 9 | 3 | 2 | 209 | 10 | 5 |
| 301024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301025 | 8,264 | 5,039 | 1,613 | 0 | 3,024 | 3,225 | 1,008 | 605 | 74,379 | 3,628 | 1,814 |
| 301026 | 26,570 | 2,952 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301033 | 3,901 | 1,342 | 3,504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301034 | 733 | 447 | 143 | 0 | 268 | 286 | 89 | 54 | 6,595 | 322 | 161 |
| 301035 | 5 | 2 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 |
| 301036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301041 | 1,233 | 752 | 240 | 0 | 451 | 481 | 150 | 90 | 11,093 | 541 | 271 |
| 301042 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301050 | 450 | 275 | 88 | 0 | 165 | 176 | 55 | 33 | 4,052 | 198 | 99 |
| 301060 | 552 | 337 | 108 | 0 | 202 | 216 | 67 | 40 | 4,971 | 242 | 121 |
| 301091 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301120 | 0 | 0 | 0 | 0 | 0 | 6,568 | 0 | 0 | 0 | 0 | 0 |
| 301125 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301130 | 83 | 35 | 0 | 0 | 0 | 427 | 0 | 0 | 0 | 0 | 0 |
| 301132 | 1,623 | 990 | 317 | 0 | 594 | 633 | 198 | 119 | 14,608 | 713 | 356 |
| 301137 | 123 | 75 | 24 | 0 | 45 | 48 | 15 | 9 | 1,104 | 54 | 27 |
| 301156 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301169 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301174 | 629 | 384 | 123 | 0 | 230 | 246 | 77 | 46 | 5,663 | 276 | 138 |
| 301181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301197 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301206 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301250 | 205 | 70 | 19 | 0 | 86 | 91 | 26 | 18 | 0 | 0 | 10 |
| 301251 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301253 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301254 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301258 | 26,409 | 561 | 15,921 | 0 | 337 | 359 | 112 | 67 | 8,283 | 404 | 202 |
| 301820 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301888 | 176 | 108 | 34 | 0 | 65 | 69 | 22 | 13 | 1,587 | 77 | 39 |
| 301900 | 757 | 260 | 71 | 0 | 319 | 337 | 95 | 65 | 0 | 0 | 35 |
| 301999 | 245,420 | 84,363 | 23,0[illegible]8 | 0 | 103,537 | 109,289 | 30,678 | 21,091 | 0 | 0 | 11,504 |
| 302001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 302002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302007 | 62 | 0 | 0 | 0 | 0 | 247 | 0 | 0 | 0 | 0 | 0 |
| 302008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302009 | 17 | 0 | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 | 0 |
| 302010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302012 | 3 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 |
| 302013 | 0 | 475 | 3,510 | 825 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302018 | 2 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 302019 | 92 | 0 | 0 | 0 | 0 | 370 | 0 | 0 | 0 | 0 | 0 |
| 302020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302032 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 302033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302888 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 302999 | 44 | 0 | 0 | 0 | 0 | 176 | 0 | 0 | 0 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 54,048 | 2,402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303003 | 114,083 | 5,070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303004 | 140 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 124 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 303009 | 1,848 | 1,807 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 303010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 309 | 11 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 304001 | 1,204 | 523 | 0 | 0 | 0 | 31,298 | 0 | 0 | 0 | 0 | 0 |
| 304002 | 58 | 25 | 0 | 0 | 0 | 1,521 | 0 | 0 | 0 | 0 | 0 |
| 304003 | 6,728 | 243 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 0 |
| 304004 | 1,085 | 472 | 0 | 0 | 0 | 28,216 | 0 | 0 | 0 | 0 | 0 |
| 304005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304007 | 383 | 14 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 304008 | 1 | 1 | 0 | 0 | 0 | 33 | 0 | 0 | 0 | 0 | 0 |
| 304009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304020 | 193 | 66 | 13 | 0 | 81 | 86 | 24 | 17 | 0 | 0 | 9 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 304022 | 68 | 30 | 0 | 0 | 0 | 1,766 | 0 | 0 | 0 | 0 | 0 |
| 304034 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304050 | 157 | 68 | 0 | 0 | 0 | 4,087 | 0 | 0 | 0 | 0 | 0 |
| 304888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304999 | 186 | 81 | 0 | 0 | 0 | 4,827 | 0 | 0 | 0 | 0 | 0 |
| 305001 | 0 | 0 | 0 | 0 | 0 | 1,693 | 0 | 0 | 0 | 0 | 0 |
| 305002 | 664 | 281 | 0 | 0 | 0 | 3,410 | 0 | 0 | 0 | 0 | 0 |
| 305003 | 667 | 201 | 176 | 41 | 0 | 4,796 | 0 | 0 | 0 | 0 | 0 |
| 305004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305005 | 21 | 7 | 0 | 0 | 0 | 88 | 0 | 0 | 0 | 0 | 0 |
| 305006 | 0 | 0 | 0 | 0 | 0 | 6,100 | 0 | 0 | 2,103 | 0 | 0 |
| 305007 | 3 | 0 | 0 | 0 | 0 | 6,407 | 0 | 0 | 2,209 | 0 | 0 |
| 305008 | 38 | 1 | 0 | 0 | 0 | 55 | 0 | 0 | 15 | 0 | 0 |
| 305009 | 12 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 305010 | 0 | 1,282 | 9,476 | 2,227 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305011 | 7 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 305012 | 1,765 | 38 | 0 | 0 | 0 | 537 | 0 | 0 | 0 | 0 | 0 |
| 305013 | 88 | 2 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 |
| 305014 | 2,273 | 235 | 0 | 0 | 0 | 2,924 | 0 | 0 | 0 | 0 | 0 |
| 305015 | 2 | 3 | 25 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 305016 | 0 | 571 | 4,218 | 991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305017 | 16 | 7 | 0 | 0 | 0 | 423 | 0 | 0 | 0 | 0 | 0 |
| 305018 | 59 | 1 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 0 |
| 305019 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| 305020 | 71 | 2 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 1,128 | 25 | 0 | 0 | 0 | 343 | 0 | 0 | 0 | 0 | 0 |
| 305040 | 48 | 1 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 |
| 305100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305999 | 2,573 | 56 | 0 | 0 | 0 | 783 | 0 | 0 | 0 | 0 | 0 |
| 306001 | 4,060 | 1,717 | 0 | 0 | 0 | 56,353 | 0 | 0 | 12,243 | 0 | 0 |
| 306002 | 0 | 0 | 0 | 0 | 0 | 1,524,316 | 0 | 0 | 0 | 0 | 0 |
| 306003 | 0 | 0 | 0 | 0 | 0 | 55,204 | 0 | 0 | 0 | 0 | 0 |
| 306004 | 3,618 | 2,329 | 1,425 | 0 | 1,286 | 1,358 | 381 | 262 | 0 | 0 | 143 |
| 306005 | 31,601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306006 | 6,605 | 0 | 0 | 0 | 0 | 292,370 | 0 | 0 | 0 | 0 | 0 |
| 306007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306008 | 13,820 | 3,783 | 1,405 | 0 | 0 | 23,830 | 0 | 0 | 0 | 0 | 0 |
| 306009 | 0 | 0 | 0 | 0 | 0 | 70,208 | 0 | 0 | 0 | 0 | 0 |
| 306010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306011 | 2,189 | 4,925 | 4,378 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306012 | 0 | 0 | 0 | 0 | 0 | 46,402 | 0 | 0 | 0 | 0 | 0 |
| 306014 | 253 | 107 | 0 | 0 | 0 | 1,298 | 0 | 0 | 0 | 0 | 0 |
| 306100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306888 | 352 | 1,246 | 493 | 0 | 46 | 49 | 14 | 9 | 0 | 0 | 5 |
| 306999 | 496 | 2,482 | 953 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 143 | 60 | 0 | 0 | 0 | 732 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 307002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307011 | 0 | 3,311 | 2,926 | 0 | 0 | 0 | 0 | 0 | 13,245 | 14,554 | 0 |
| 307013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 308001 | 1,733 | 228 | 48 | 0 | 217 | 229 | 64 | 44 | 0 | 0 | 24 |
| 308006 | 337 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 308007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309001 | 154 | 67 | 0 | 0 | 0 | 4,001 | 0 | 0 | 0 | 0 | 0 |
| 309002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309010 | 250 | 125 | 0 | 0 | 0 | 7,807 | 0 | 0 | 5,680 | 5,805 | 0 |
| 309011 | 6 | 3 | 0 | 0 | 0 | 190 | 0 | 0 | 139 | 142 | 0 |
| 309020 | 1,467 | 638 | 0 | 0 | 0 | 38,142 | 0 | 0 | 0 | 0 | 0 |
| 309030 | 95 | 47 | 0 | 0 | 0 | 2,957 | 0 | 0 | 2,152 | 2,199 | 0 |
| 309060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 309888 | 9 | 4 | 0 | 0 | 0 | 272 | 0 | 0 | 198 | 202 | 0 |
| 309999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,980 | 11,112 | 0 |
| 310001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 310002 | 766 | 263 | 72 | 0 | 323 | 806 | 96 | 66 | 0 | 0 | 36 |
| 312999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 320999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,308 | 1,456 | 0 |
| 330001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69,833 | 77,751 | 0 |
| 330002 | 0 | 1,469 | 1,298 | 0 | 0 | 0 | 0 | 0 | 5,876 | 6,457 | 0 |
| 330003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 256 | 285 | 0 |
| 330004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390001 | 0 | 3 | 25 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390002 | 0 | 375 | 2,774 | 652 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390004 | 0 | 0 | 0 | 0 | 0 | 24,423 | 0 | 0 | 8,421 | 0 | 0 |
| 390005 | 0 | 0 | 0 | 0 | 0 | 12,649 | 0 | 0 | 0 | 0 | 0 |
| 390006 | 11,990 | 5,073 | 0 | 0 | 0 | 61,566 | 0 | 0 | 0 | 0 | 0 |
| 390007 | 2,006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390010 | 810 | 343 | 0 | 0 | 0 | 4,160 | 0 | 0 | 0 | 0 | 0 |
| 390012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 399999 | 96,961 | 41,022 | 0 | 0 | 0 | 497,858 | 0 | 0 | 0 | 0 | 0 |
| 401001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401002 | 0 | 83,066 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 401913 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 7 | 0 | 3 |
| 402001 | 0 | 1,332,047 | 467,776 | 0 | 0 | 0 | 0 | 0 | 467,776 | 320,760 | 0 |
| 402002 | 0 | 1,024 | 439 | 750 | 0 | 0 | 0 | 128 | 1,005 | 1,664 | 402 |
| 402003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205,475 | 229,539 | 0 |
| 402004 | 0 | 140,086 | 82,80[illegible] | 0 | 0 | 0 | 0 | 0 | 281,037 | 420,357 | 5,847 |
| 402005 | 0 | 38,912 | 42,241 | 0 | 0 | 0 | 0 | 0 | 120,073 | 134,526 | 31,130 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 402006 | 0 | 29,953 | 32,806 | 0 | 0 | 0 | 0 | 0 | 87,007 | 98,417 | 65,611 |
| 402007 | 0 | 120,002 | 42,390 | 0 | 0 | 0 | 0 | 0 | 45,871 | 31,332 | 0 |
| 402008 | 0 | 1,285 | 0 | 0 | 0 | 6,147 | 0 | 0 | 615 | 0 | 16,597 |
| 402009 | 0 | 119,663 | 116,905 | 0 | 0 | 0 | 0 | 0 | 325,545 | 315,879 | 18,561 |
| 402010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39,725 |
| 402011 | 0 | 752 | 665 | 0 | 0 | 0 | 0 | 0 | 3,008 | 3,306 | 0 |
| 402013 | 0 | 6,481 | 5,670 | 0 | 0 | 0 | 0 | 0 | 25,665 | 28,327 | 204 |
| 402014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 402016 | 0 | 330 | 355 | 0 | 0 | 0 | 0 | 0 | 990 | 1,116 | 657 |
| 402017 | 0 | 11,953 | 10,563 | 0 | 0 | 0 | 0 | 0 | 52,840 | 58,155 | 0 |
| 402018 | 0 | 120 | 131 | 0 | 0 | 0 | 0 | 0 | 348 | 393 | 262 |
| 402019 | 0 | 194 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 501 | 156 |
| 402020 | 0 | 123 | 95 | 0 | 0 | 52 | 0 | 0 | 326 | 397 | 743 |
| 402021 | 0 | 55 | 48 | 0 | 0 | 0 | 0 | 0 | 218 | 240 | 0 |
| 402022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 402023 | 0 | 96 | 84 | 0 | 0 | 0 | 0 | 0 | 382 | 420 | 0 |
| 402024 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 10 | 11 | 8 |
| 402025 | 0 | 646 | 571 | 0 | 0 | 0 | 0 | 0 | 2,582 | 2,838 | 0 |
| 402888 | 0 | 11,348 | 10,028 | 0 | 0 | 0 | 0 | 0 | 45,392 | 49,878 | 0 |
| 402901 | 0 | 25 | 22 | 0 | 0 | 0 | 0 | 0 | 100 | 110 | 0 |
| 402999 | 0 | 66,057 | 49,946 | 66,057 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 40,586 | 86,498 | 88,186 | 0 | 92,353 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403002 | 19,149 | 59,294 | 70,435 | 0 | 73,763 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403003 | 7,095 | 2,477 | 2,996 | 0 | 3,137 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403010 | 8,766 | 24,028 | 27,920 | 0 | 29,239 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403011 | 9,768 | 31,383 | 37,512 | 0 | 39,332 | 3 | 0 | 0 | 162 | 167 | 8 |
| 403012 | 6,514 | 22,064 | 26,687 | 0 | 27,948 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403888 | 902 | 2,836 | 0 | 0 | 1,590 | 86 | 0 | 0 | 5,285 | 5,456 | 258 |
| 403999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 404001 | 32,041 | 108,525 | 131,264 | 0 | 137,465 | 0 | 0 | 0 | 0 | 0 | 0 |
| 404002 | 620 | 2,100 | 2,540 | 0 | 2,661 | 0 | 0 | 0 | 0 | 0 | 0 |
| 405001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 405002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 405003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,231 |
| 405004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 405005 | 0 | 43,088 | 583 | 13,753 | 12,547 | 0 | 0 | 0 | 7,209 | 54,041 | 99,511 |
| 405006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,144 |
| 405888 | 0 | 0 | 0 | 0 | 0 | 2,918 | 0 | 0 | 0 | 0 | 0 |
| 406001 | 22,959 | 76,357 | 92,072 | 0 | 96,422 | 5 | 0 | 0 | 0 | 0 | 0 |
| 406002 | 4,765 | 11,878 | 13,508 | 0 | 14,146 | 0 | 0 | 0 | 0 | 0 | 0 |
| 406003 | 1,617 | 5,475 | 6,623 | 0 | 6,935 | 0 | 0 | 0 | 0 | 0 | 0 |
| 406004 | 2,493 | 8,445 | 10,215 | 0 | 10,698 | 0 | 0 | 0 | 0 | 0 | 0 |
| 406888 | 885 | 2,998 | 3,626 | 0 | 3,797 | 0 | 0 | 0 | 0 | 0 | 0 |
| 490001 | 0 | 1,395 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 1,158 | 2,949 |
| 490999 | 0 | 62,810 | 0 | 0 | 0 | 0 | 0 | 0 | 7,111 | 52,144 | 132,730 |
| 501001 | 1,152 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,153 | 0 | 0 |
| 501002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 501005 | 269 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 0 | 0 |
| 501900 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 501999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502001 | 1,030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 773 | 0 | 0 |
| 502002 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 189 | 0 | 0 |
| 502003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 502005 | 2,032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| 502900 | 88 | 37 | 0 | 0 | 0 | 453 | 0 | 0 | 0 | 0 | 0 |
| 503001 | 4,833 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,013 | 0 | 0 |
| 503002 | 670 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,163 | 0 | 0 |
| 503005 | 428 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503900 | 159 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 990 | 0 | 0 |
| 599999 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 105 | 0 | 0 |
| U.S. TOTAL | 1,222,772 | 2,884,205 | 1,904,454 | 183,111 | 807,915 | 4,538,201 | 76,133 | 52,123 | 2,607,605 | 2,094,680 | 466,463 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| State | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alabama | 777,509 | 28,739 | 224,151 | 7,366 | 185 | 283,116 | 19,291 | 3,518 | 602 | 81,327 | 1,604 | 488 | 356 | 280 | 52,531 | 66,836 |
| Arizona | 824,136 | 29,305 | 102,999 | 3,765 | 73 | 64,834 | 8,862 | 1,071 | 5,009 | 27,451 | 1,175 | 334 | 111 | 57 | 13,246 | 13,948 |
| Arkansas | 55,654 | 8,336 | 41,818 | 1,707 | 1 | 135,410 | 1,761 | 1,413 | 12,324 | 33,610 | 307 | 95 | 23 | 48 | 15,425 | 16,385 |
| California | 390,765 | 22,801 | 310,207 | 15,693 | 216 | 354,357 | 0 | 131 | 4,653 | 135,939 | 1,777 | 375 | 48 | 235 | 296,959 | 353,118 |
| Colorado | 117,379 | 7,626 | 134,392 | 5,125 | 442 | 110,700 | 9,054 | 1,186 | 7,795 | 53,026 | 2,320 | 445 | 177 | 119 | 16,536 | 22,616 |
| Connecticut | 34,524 | 2,228 | 21,935 | 571 | 78 | 11,759 | 386 | 0 | 0 | 8,160 | 28 | 8 | 3 | 3 | 24,045 | 24,771 |
| Delaware | 96,889 | 1,965 | 25,220 | 750 | 1 | 8,526 | 1,106 | 184 | 1 | 16,575 | 167 | 176 | 84 | 45 | 25,868 | 27,329 |
| Dist. of Colum. | 7,164 | 399 | 2,504 | 113 | 2 | 4,109 | 589 | 7 | 0 | 863 | 7 | 7 | 4 | 2 | 451 | 1,169 |
| Florida | 1,018,759 | 25,261 | 307,361 | 11,013 | 23 | 145,583 | 8,670 | 29,030 | 21,887 | 100,437 | 6,269 | 931 | 201 | 84 | 48,306 | 51,735 |
| Georgia | 862,393 | 27,802 | 270,803 | 8,714 | 45 | 162,451 | 20,392 | 2,486 | 19,889 | 41,780 | 299 | 263 | 201 | 222 | 27,300 | 28,379 |
| Idaho | 36,610 | 6,598 | 8,485 | 335 | 449 | 41,789 | 314 | 173 | 121 | 12,020 | 87 | 23 | 10 | 37 | 2,608 | 4,649 |
| Illinois | 1,350,414 | 33,150 | 450,340 | 16,607 | 1,518 | 312,428 | 33,310 | 7,890 | 39,976 | 197,188 | 5,892 | 1,899 | 708 | 899 | 153,055 | 200,212 |
| Indiana | 1,826,567 | 28,766 | 443,844 | 15,485 | 462 | 296,070 | 33,163 | 4,487 | 11,695 | 201,252 | 5,026 | 2,324 | 1,694 | 4,565 | 87,406 | 116,818 |
| Iowa | 307,348 | 9,629 | 121,336 | 3,972 | 71 | 54,874 | 11,434 | 1,701 | 19,260 | 151,474 | 3,038 | 685 | 386 | 54 | 17,782 | 20,263 |
| Kansas | 193,588 | 6,128 | 203,999 | 10,231 | 1 | 61,361 | 6,552 | 792 | 96 | 43,258 | 354 | 103 | 42 | 22 | 40,304 | 73,307 |
| Kentucky | 1,098,360 | 18,018 | 303,448 | 9,995 | 107 | 117,028 | 22,400 | 3,768 | 116 | 127,561 | 1,734 | 970 | 349 | 183 | 102,788 | 116,606 |
| Louisiana | 236,911 | 14,000 | 413,667 | 21,573 | 49 | 998,666 | 736 | 1,663 | 21,860 | 118,871 | 407 | 58 | 133 | 219 | 295,753 | 322,789 |
| Maine | 114,789 | 7,242 | 20,237 | 504 | 1 | 44,700 | 26 | 3 | 0 | 18,217 | 72 | 21 | 75 | 36 | 17,888 | 18,945 |
| Maryland | 275,263 | 6,203 | 88,288 | 3,058 | 5 | 33,723 | 6,546 | 1,260 | 2 | 36,069 | 442 | 217 | 101 | 79 | 59,894 | 76,098 |
| Massachusetts | 297,037 | 5,977 | 75,448 | 2,177 | 162 | 14,048 | 2,155 | 84 | 0 | 17,624 | 193 | 142 | 65 | 35 | 94,270 | 117,747 |
| Michigan | 797,627 | 24,456 | 323,480 | 12,192 | 176 | 271,202 | 22,683 | 3,139 | 228 | 143,924 | 9,496 | 1,217 | 482 | 565 | 195,994 | 216,766 |
| Minnesota | 210,481 | 9,566 | 130,327 | 4,499 | 10 | 33,932 | 8,659 | 1,113 | 16,428 | 130,576 | 2,218 | 624 | 160 | 79 | 65,852 | 68,438 |
| Mississippi | 251,012 | 7,051 | 92,686 | 3,803 | 0 | 82,975 | 2,587 | 314 | 358 | 24,231 | 125 | 68 | 86 | 41 | 52,561 | 57,773 |
| Missouri | 1,270,841 | 16,895 | 278,522 | 9,515 | 288 | 80,142 | 22,038 | 2,663 | 6 | 311,839 | 18,356 | 3,228 | 685 | 347 | 170,834 | 183,961 |
| Montana | 146,533 | 6,039 | 36,399 | 1,601 | 213 | 139,579 | 1,994 | 243 | 185 | 19,205 | 129 | 56 | 23 | 26 | 12,081 | 15,086 |
| Nebraska | 64,214 | 3,388 | 50,811 | 1,892 | 30 | 10,148 | 4,577 | 577 | 354 | 43,613 | 326 | 87 | 12 | 6 | 45,451 | 46,423 |
| Nevada | 140,938 | 6,114 | 46,094 | 1,543 | 6 | 13,032 | 3,515 | 442 | 1 | 28,465 | 407 | 91 | 21 | 12 | 3,398 | 3,562 |
| New Hampshire | 96,421 | 2,619 | 26,166 | 741 | 0 | 4,914 | 1,026 | 124 | 0 | 4,000 | 15 | 9 | 23 | 3 | 16,682 | 17,636 |
| New Jersey | 233,574 | 6,520 | 127,777 | 4,623 | 0 | 83,692 | 2,442 | 302 | 12 | 98,206 | 37 | 24 | 11 | 6 | 104,827 | 119,935 |
| New Mexico | 250,262 | 7,939 | 150,081 | 7,112 | 4 | 26,933 | 8,295 | 977 | 150 | 34,495 | 923 | 409 | 178 | 105 | 37,202 | 51,033 |
| New York | 760,082 | 23,645 | 279,527 | 8,372 | 16 | 113,978 | 9,200 | 1,875 | 3 | 245,892 | 1,367 | 1,144 | 548 | 310 | 90,149 | 141,636 |
| North Carolina | 605,426 | 22,669 | 249,186 | 7,773 | 21 | 126,370 | 23,513 | 3,070 | 8,664 | 115,851 | 2,247 | 943 | 303 | 165 | 82,978 | 100,142 |
| North Dakota | 95,891 | 10,188 | 70,089 | 2,258 | 5 | 55,560 | 71 | 47 | 200 | 48,845 | 777 | 786 | 371 | 199 | 2,616 | 3,423 |
| Ohio | 2,615,591 | 42,357 | 632,950 | 21,023 | 976 | 690,969 | 50,337 | 7,179 | 1,802 | 277,919 | 7,714 | 3,538 | 1,500 | 1,131 | 120,764 | 150,742 |
| Oklahoma | 83,987 | 7,332 | 150,842 | 7,423 | 4 | 338,386 | 5,740 | 763 | 1,405 | 67,489 | 5,438 | 648 | 34 | 29 | 63,340 | 73,889 |
| Oregon | 24,497 | 13,985 | 43,349 | 1,545 | 20 | 30,413 | 544 | 92 | 0 | 33,286 | 1,103 | 54 | 54 | 310 | 29,815 | 36,281 |
| Pennsylvania | 1,783,153 | 43,985 | 479,812 | 15,867 | 763 | 470,810 | 41,375 | 5,504 | 8,552 | 187,784 | 6,383 | 2,006 | 826 | 1,400 | 132,321 | 162,706 |
| Rhode Island | 7,102 | 288 | 3,752 | 119 | 4 | 2,014 | 14 | 0 | 0 | 1,065 | 1 | 0 | 1 | 1 | 9,836 | 11,124 |
| South Carolina | 316,336 | 14,823 | 121,077 | 3,843 | 85 | 79,221 | 8,973 | 1,596 | 1,020 | 142,530 | 486 | 337 | 178 | 122 | 210,703 | 221,994 |
| South Dakota | 33,897 | 3,252 | 24,565 | 775 | 5 | 15,218 | 220 | 37 | 1 | 33,423 | 2,168 | 475 | 89 | 9 | 2,044 | 3,023 |
| Tennessee | 1,120,219 | 23,980 | 276,449 | 9,843 | 143 | 153,761 | 23,266 | 4,243 | 10,293 | 114,674 | 1,002 | 665 | 375 | 209 | 134,184 | 143,795 |
| Texas | 1,053,679 | 47,897 | 1,244,129 | 64,174 | 374 | 2,126,155 | 18,937 | 5,841 | 11,535 | 388,434 | 6,686 | 2,056 | 329 | 351 | 761,649 | 900,425 |
| Utah | 88,412 | 7,179 | 55,550 | 2,060 | 43 | 33,766 | 3,547 | 495 | 52 | 61,873 | 2,831 | 892 | 658 | 1,844 | 7,961 | 9,248 |
| Vermont | 1,543 | 37 | 278 | 9 | 0 | 39 | 9 | 0 | 0 | 1,544 | 3 | 3 | 1 | 2 | 2,804 | 3,047 |
| Virginia | 304,930 | 13,159 | 119,309 | 4,003 | 34 | 386,565 | 7,047 | 1,318 | 4,539 | 109,050 | 2,422 | 1,090 | 402 | 223 | 86,880 | 99,831 |
| Washington | 268,669 | 14,207 | 68,722 | 2,537 | 87 | 221,531 | 4,942 | 1,488 | 10,076 | 86,100 | 494 | 319 | 188 | 280 | 40,651 | 43,628 |
| West Virginia | 1,130,784 | 25,524 | 328,057 | 10,283 | 415 | 153,195 | 29,055 | 4,861 | 8 | 60,484 | 946 | 666 | 296 | 240 | 4,861 | 5,487 |
| Wisconsin | 642,486 | 18,129 | 176,179 | 5,844 | 79 | 45,510 | 15,215 | 2,310 | 651 | 98,764 | 8,395 | 927 | 324 | 213 | 63,719 | 70,106 |
| Wyoming | 184,096 | 11,953 | 127,965 | 4,464 | 3 | 82,566 | 13,084 | 1,723 | 3,660 | 27,984 | 116 | 103 | 44 | 25 | 18,685 | 22,183 |
| Contig. U.S. | 24,504,741 | 725,349 | 9,284,610 | 358,489 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 113,808 | 32,025 | 12,975 | 15,474 | 3,963,258 | 4,657,042 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| State | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alabama | 705,358 | 26,072 | 203,350 | 6,683 | 168 | 256,843 | 17,501 | 3,192 | 546 | 73,780 | 1,455 | 443 | 323 | 254 | 47,657 | 60,634 |
| Arizona | 747,658 | 26,586 | 93,441 | 3,416 | 66 | 58,818 | 8,040 | 972 | 4,544 | 24,904 | 1,066 | 303 | 101 | 52 | 12,017 | 12,654 |
| Arkansas | 50,489 | 7,562 | 37,937 | 1,549 | 1 | 122,844 | 1,598 | 1,282 | 11,180 | 30,491 | 278 | 86 | 21 | 44 | 13,994 | 14,865 |
| California | 35-,503 | 20,685 | 281,420 | 14,237 | 196 | 321,473 | 0 | 119 | 4,221 | 123,324 | 1,612 | 340 | 44 | 213 | 269,401 | 320,350 |
| Colorado | 106,486 | 6,918 | 121,921 | 4,649 | 401 | 100,427 | 8,214 | 1,076 | 7,072 | 48,106 | 2,104 | 404 | 160 | 108 | 15,002 | 20,517 |
| Connecticut | 31,320 | 2,021 | 19,899 | 518 | 71 | 10,668 | 350 | 0 | 0 | 7,403 | 26 | 7 | 3 | 3 | 21,814 | 22,472 |
| Delaware | 87,898 | 1,783 | 22,880 | 680 | 1 | 7,735 | 1,003 | 167 | 1 | 15,037 | 151 | 160 | 77 | 41 | 23,468 | 24,793 |
| Dist. of Colum. | 6,499 | 362 | 2,271 | 102 | 2 | 3,728 | 534 | 6 | 0 | 783 | 6 | 6 | 3 | 2 | 409 | 1,060 |
| Florida | 924,220 | 22,917 | 278,839 | 9,991 | 21 | 132,073 | 7,865 | 26,336 | 19,856 | 91,117 | 5,687 | 844 | 183 | 76 | 43,824 | 46,934 |
| Georgia | 782,365 | 25,222 | 245,673 | 7,905 | 41 | 147,376 | 18,500 | 2,255 | 18,043 | 37,903 | 271 | 239 | 182 | 202 | 24,766 | 25,746 |
| Idaho | 33,213 | 5,986 | 7,697 | 304 | 407 | 37,911 | 285 | 157 | 110 | 10,905 | 79 | 21 | 9 | 33 | 2,366 | 4,217 |
| Illinois | 1,225,099 | 30,074 | 408,549 | 15,066 | 1,377 | 283,435 | 30,219 | 7,158 | 36,266 | 178,889 | 5,345 | 1,723 | 642 | 816 | 138,852 | 181,633 |
| Indiana | 1,657,066 | 26,097 | 402,656 | 14,048 | 419 | 268,595 | 30,086 | 4,071 | 10,610 | 182,576 | 4,559 | 2,108 | 1,537 | 4,142 | 79,295 | 105,977 |
| Iowa | 278,827 | 8,735 | 110,076 | 3,604 | 64 | 49,782 | 10,373 | 1,543 | 17,473 | 137,417 | 2,756 | 621 | 350 | 49 | 16,132 | 18,383 |
| Kansas | 175,623 | 5,559 | 185,068 | 9,282 | 1 | 55,667 | 5,944 | 719 | 87 | 39,244 | 321 | 94 | 38 | 20 | 36,564 | 66,504 |
| Kentucky | 996,435 | 16,346 | 275,289 | 9,067 | 97 | 106,168 | 20,321 | 3,418 | 105 | 115,724 | 1,573 | 880 | 317 | 166 | 93,249 | 105,785 |
| Louisiana | 214,926 | 12,701 | 375,280 | 19,571 | 44 | 905,992 | 668 | 1,509 | 19,831 | 107,840 | 369 | 52 | 120 | 199 | 268,308 | 292,835 |
| Maine | 104,137 | 6,570 | 18,359 | 457 | 1 | 40,552 | 24 | 3 | 0 | 16,527 | 65 | 19 | 68 | 33 | 16,228 | 17,187 |
| Maryland | 249,719 | 5,627 | 80,095 | 2,774 | 5 | 30,594 | 5,939 | 1,143 | 2 | 32,722 | 401 | 197 | 92 | 72 | 54,336 | 69,036 |
| Massachusetts | 269,473 | 5,422 | 68,447 | 1,975 | 147 | 12,744 | 1,955 | 76 | 0 | 15,989 | 175 | 129 | 59 | 32 | 85,522 | 106,820 |
| Michigan | 723,609 | 22,187 | 293,462 | 11,061 | 160 | 246,035 | 20,578 | 2,848 | 207 | 130,568 | 8,615 | 1,104 | 438 | 512 | 177,806 | 196,651 |
| Minnesota | 190,949 | 8,678 | 118,233 | 4,082 | 9 | 30,783 | 7,855 | 1,010 | 14,903 | 118,459 | 2,012 | 566 | 145 | 71 | 59,741 | 62,087 |
| Mississippi | 227,719 | 6,397 | 84,085 | 3,450 | 0 | 75,275 | 2,347 | 285 | 324 | 21,982 | 113 | 61 | 78 | 37 | 47,683 | 52,411 |
| Missouri | 1,152,910 | 15,327 | 252,676 | 8,632 | 261 | 72,705 | 19,993 | 2,416 | 6 | 282,901 | 16,652 | 2,928 | 621 | 315 | 154,981 | 166,890 |
| Montana | 132,935 | 5,479 | 33,021 | 1,453 | 193 | 126,626 | 1,809 | 220 | 168 | 17,423 | 117 | 51 | 21 | 24 | 10,960 | 13,686 |
| Nebraska | 58,255 | 3,074 | 46,096 | 1,716 | 27 | 9,206 | 4,152 | 523 | 322 | 39,566 | 296 | 79 | 11 | 6 | 41,233 | 42,115 |
| Nevada | 127,859 | 5,547 | 41,817 | 1,399 | 5 | 11,823 | 3,189 | 401 | 1 | 25,824 | 369 | 83 | 19 | 11 | 3,083 | 3,231 |
| New Hampshire | 87,473 | 2,376 | 23,738 | 672 | 0 | 4,458 | 931 | 112 | 0 | 3,629 | 13 | 8 | 21 | 3 | 15,134 | 15,997 |
| New Jersey | 211,899 | 5,915 | 115,919 | 4,194 | 0 | 75,926 | 2,215 | 274 | 11 | 89,093 | 34 | 22 | 10 | 5 | 95,099 | 108,806 |
| New Mexico | 227,038 | 7,202 | 136,154 | 6,452 | 4 | 24,434 | 7,525 | 886 | 136 | 31,294 | 838 | 371 | 161 | 95 | 33,750 | 46,297 |
| New York | 689,548 | 21,451 | 253,587 | 7,595 | 15 | 103,401 | 8,346 | 1,701 | 2 | 223,074 | 1,240 | 1,038 | 497 | 281 | 81,784 | 128,493 |
| North Carolina | 549,244 | 20,565 | 226,062 | 7,052 | 19 | 114,643 | 21,331 | 2,785 | 7,860 | 105,100 | 2,038 | 855 | 275 | 150 | 75,278 | 90,849 |
| North Dakota | 86,993 | 9,243 | 63,585 | 2,049 | 5 | 50,404 | 64 | 43 | 182 | 44,312 | 705 | 713 | 336 | 180 | 2,374 | 3,106 |
| Ohio | 2,372,870 | 38,426 | 574,214 | 19,072 | 885 | 626,849 | 45,666 | 6,513 | 1,635 | 252,129 | 6,998 | 3,209 | 1,361 | 1,026 | 109,557 | 136,754 |
| Oklahoma | 76,193 | 6,652 | 136,844 | 6,734 | 4 | 306,985 | 5,207 | 692 | 1,274 | 61,226 | 4,933 | 588 | 31 | 26 | 57,462 | 67,032 |
| Oregon | 22,224 | 12,687 | 39,326 | 1,402 | 18 | 27,591 | 494 | 83 | 0 | 30,197 | 1,001 | 49 | 49 | 281 | 27,048 | 32,915 |
| Pennsylvania | 1,617,680 | 39,903 | 435,287 | 14,394 | 692 | 427,120 | 37,535 | 4,993 | 7,758 | 170,358 | 5,791 | 1,920 | 749 | 1,270 | 120,042 | 147,607 |
| Rhode Island | 6,443 | 261 | 3,404 | 108 | 4 | 1,827 | 13 | 0 | 0 | 966 | 1 | 0 | 1 | 1 | 8,924 | 10,092 |
| South Carolina | 286,981 | 13,447 | 109,861 | 3,486 | 77 | 71,869 | 8,140 | 1,448 | 925 | 129,304 | 441 | 305 | 161 | 110 | 191,151 | 201,394 |
| South Dakota | 30,751 | 2,950 | 22,286 | 703 | 5 | 13,806 | 200 | 34 | 1 | 30,321 | 1,967 | 431 | 80 | 8 | 1,854 | 2,743 |
| Tennessee | 1,016,265 | 21,755 | 250,795 | 8,930 | 130 | 139,492 | 21,107 | 3,849 | 9,338 | 104,033 | 909 | 603 | 340 | 190 | 121,732 | 130,451 |
| Texas | 955,900 | 43,452 | 1,128,677 | 58,219 | 339 | 1,928,852 | 17,180 | 5,299 | 10,464 | 352,388 | 6,066 | 1,865 | 298 | 318 | 690,969 | 816,867 |
| Utah | 80,207 | 6,513 | 50,396 | 1,868 | 39 | 30,633 | 3,218 | 449 | 47 | 56,131 | 2,568 | 810 | 597 | 1,672 | 7,222 | 8,390 |
| Vermont | 1,400 | 34 | 252 | 8 | .0 | 35 | 8 | 0 | 0 | 1,401 | 2 | 2 | 1 | 2 | 2,544 | 2,764 |
| Virginia | 276,633 | 11,938 | 108,238 | 3,631 | 31 | 350,693 | 6,393 | 1,196 | 4,118 | 98,930 | 2,197 | 989 | 365 | 203 | 78,818 | 90,567 |
| Washington | 243,737 | 12,889 | 62,344 | 2,302 | 79 | 200,973 | 4,483 | 1,350 | 9,141 | 78,110 | 448 | 289 | 171 | 254 | 36,878 | 39,580 |
| West Virginia | 1,025,850 | 23,155 | 297,614 | 9,328 | 376 | 138,979 | 26,359 | 4,410 | 8 | 54,871 | 858 | 604 | 268 | 218 | 4,410 | 4,978 |
| Wisconsin | 582,865 | 16,447 | 159,830 | 5,302 | 72 | 41,287 | 13,803 | 2,096 | 591 | 89,599 | 7,616 | 841 | 296 | 193 | 57,806 | 63,600 |
| Wyoming | 167,012 | 10,844 | 116,090 | 4,050 | 3 | 74,904 | 11,870 | 1,563 | 3,320 | 25,387 | 105 | 93 | 40 | 22 | 16,951 | 20,125 |
| Contig. U.S. | 22,230,755 | 658,038 | 8,4:3,019 | 325,222 | 6,981 | 8,281,040 | 471,429 | 102,580 | 222,688 | 3,959,255 | 103,247 | 29,053 | 11,771 | 14,038 | 3,595,476 | 4,224,879 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| State | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| Alabama | 567,049 | 129,082 | 123,104 | 84,044 | 70,370 | 1,695 | 537 | 281,333 | 90,158 | 12,789 | 0 | 14,737 |
| Arizona | 37,023 | 1,443 | 3,579 | 3,242 | 2,233 | 3,062 | 92 | 64,988 | 42,964 | 241 | 0 | 28,523 |
| Arkansas | 51,129 | 1,682 | 2,637 | 4,390 | 987 | 2,379 | 194 | 68,483 | 70,975 | 20,213 | 0 | 29,876 |
| California | 2,789,315 | 206,432 | 345,672 | 393,744 | 130,179 | 196,819 | 1,316 | 1,314,786 | 231,632 | 60,674 | 0 | 153,351 |
| Colorado | 311,144 | 17,448 | 8,800 | 7,908 | 3,730 | 1,870 | 130 | 78,161 | 22,945 | 3,001 | 0 | 3,469 |
| Connecticut | 38,703 | 1,253 | 426 | 3,483 | 63 | 7 | 0 | 53,515 | 2,092 | 707 | 0 | 3,777 |
| Delaware | 75,445 | 3,834 | 7,964 | 14,669 | 4,467 | 9,511 | 9 | 70,913 | 20,040 | 5,702 | 0 | 21,782 |
| Dist. of Colum. | 37,499 | 1,654 | 494 | 570 | 126 | 0 | 0 | 288 | 3,372 | 618 | 0 | 1,032 |
| Florida | 176,335 | 9,379 | 6,868 | 18,383 | 1,427 | 10,743 | 601 | 218,771 | 74,426 | 21,445 | 0 | 73,301 |
| Georgia | 49,813 | 5,996 | 4,295 | 4,573 | 994 | 3,517 | 1,087 | 35,819 | 4,111 | 1,426 | 0 | 11,238 |
| Idaho | 112,601 | 1,497 | 900 | 1,134 | 179 | 826 | 210 | 10,005 | 1,446 | 1,401 | 0 | 1,944 |
| Illinois | 2,424,888 | 129,218 | 71,756 | 87,450 | 26,058 | 47,002 | 377 | 616,811 | 205,937 | 34,665 | 0 | 136,395 |
| Indiana | 1,532,962 | 69,604 | 27,093 | 21,130 | 6,551 | 17,074 | 393 | 442,080 | 159,689 | 13,295 | 0 | 37,050 |
| Iowa | 132,336 | 4,277 | 1,743 | 1,329 | 284 | 173 | 177 | 137,196 | 7,104 | 6,812 | 0 | 2,375 |
| Kansas | 1,654,723 | 113,025 | 89,726 | 32,525 | 14,867 | 37,026 | 79 | 148,307 | 38,311 | 8,023 | 0 | 20,270 |
| Kentucky | 699,206 | 43,903 | 32,708 | 53,016 | 10,202 | 23,573 | 265 | 747,829 | 201,326 | 61,659 | 0 | 175,868 |
| Louisiana | 1,209,209 | 170,663 | 168,092 | 122,850 | 39,630 | 84,386 | 346 | 1,437,125 | 1,093,302 | 553,154 | 0 | 474,206 |
| Maine | 54,106 | 3,048 | 3,306 | 8,058 | 1,933 | 16,100 | 174 | 83,156 | 1,611 | 580 | 0 | 6,846 |
| Maryland | 662,307 | 135,583 | 157,592 | 131,482 | 84,446 | 21,844 | 129 | 186,048 | 8,392 | 1,426 | 0 | 21,933 |
| Massachusetts | 1,273,859 | 28,793 | 22,945 | 146,153 | 6,237 | 23,590 | 32 | 265,892 | 32,383 | 4,959 | 0 | 35,110 |
| Michigan | 1,049,034 | 67,097 | 27,214 | 50,901 | 12,549 | 48,367 | 427 | 1,171,835 | 137,230 | 11,664 | 0 | 69,657 |
| Minnesota | 136,787 | 5,054 | 7,354 | 15,871 | 5,081 | 30,265 | 138 | 407,680 | 18,459 | 5,430 | 0 | 27,384 |
| Mississippi | 285,072 | 5,169 | 7,402 | 21,758 | 1,719 | 15,692 | 1,243 | 274,722 | 642 | 202 | 0 | 21,749 |
| Missouri | 685,726 | 30,251 | 20,364 | 21,375 | 5,098 | 15,498 | 190 | 919,587 | 415,498 | 113,648 | 0 | 175,610 |
| Montana | 156,200 | 7,327 | 10,952 | 15,168 | 5,961 | 8,843 | 161 | 51,790 | 3,022 | 1,608 | 0 | 2,385 |
| Nebraska | 50,970 | 2,131 | 1,337 | 3,052 | 451 | 4,936 | 48 | 53,555 | 4,420 | 433 | 0 | 3,247 |
| Nevada | 8,530 | 383 | 1,247 | 1,773 | 633 | 2,363 | 32 | 7,765 | 1,758 | 0 | 0 | 1,859 |
| New Hampshire | 48,711 | 2,812 | 1,980 | 5,984 | 967 | 2,207 | 9 | 83,404 | 2,117 | 510 | 0 | 6,776 |
| New Jersey | 817,987 | 19,480 | 61,550 | 91,290 | 20,957 | 85,650 | 22 | 416,205 | 96,267 | 30,328 | 0 | 61,942 |
| New Mexico | 689,571 | 49,417 | 42,258 | 23,059 | 8,732 | 48,066 | 549 | 121,330 | 5,179 | 372 | 0 | 15,639 |
| New York | 2,809,552 | 54,662 | 118,289 | 196,102 | 29,241 | 75,756 | 207 | 339,294 | 6,723 | 5,252 | 0 | 20,393 |
| North Carolina | 880,476 | 48,158 | 16,875 | 24,436 | 4,298 | 11,560 | 415 | 559,651 | 102,693 | 19,345 | 0 | 25,022 |
| North Dakota | 42,915 | 1,453 | 3,636 | 1,982 | 597 | 1,250 | 84 | 6,996 | 75 | 241 | 0 | 811 |
| Ohio | 1,528,261 | 89,220 | 28,042 | 43,438 | 7,913 | 19,626 | 596 | 501,595 | 217,683 | 30,782 | 0 | 81,783 |
| Oklahoma | 462,091 | 71,772 | 119,643 | 107,581 | 52,481 | 55,869 | 81 | 229,349 | 17,196 | 10,052 | 0 | 14,831 |
| Oregon | 318,559 | 25,156 | 8,507 | 9,805 | 2,092 | 956 | 902 | 179,359 | 40,055 | 7,106 | 0 | 14,203 |
| Pennsylvania | 1,557,948 | 85,656 | 72,196 | 78,042 | 14,272 | 55,657 | 544 | 570,439 | 227,284 | 28,165 | 0 | 65,688 |
| Rhode Island | 67,705 | 2,734 | 1,163 | 7,065 | 231 | 3,877 | 0 | 49,385 | 4,510 | 924 | 0 | 3,327 |
| South Carolina | 594,917 | 23,294 | 10,788 | 35,262 | 2,521 | 5,127 | 264 | 1,164,997 | 160,557 | 42,625 | 0 | 91,834 |
| South Dakota | 54,229 | 636 | 910 | 1,603 | 256 | 2,457 | 22 | 7,811 | 1,577 | 646 | 0 | 1,311 |
| Tennessee | 489,758 | 28,699 | 14,980 | 17,446 | 3,342 | 11,588 | 1,861 | 765,133 | 160,081 | 53,642 | 0 | 131,235 |
| Texas | 7,314,138 | 285,300 | 449,962 | 611,532 | 143,396 | 397,000 | 541 | 3,684,590 | 1,389,370 | 754,977 | 0 | 530,426 |
| Utah | 63,988 | 4,695 | 7,388 | 11,798 | 3,658 | 9,213 | 59 | 39,824 | 728 | 1,176 | 0 | 1,485 |
| Vermont | 13,703 | 1 | 361 | 655 | 11 | 517 | 0 | 15,223 | 0 | 0 | 0 | 155 |
| Virginia | 647,728 | 45,224 | 20,618 | 26,432 | 3,305 | 14,481 | 296 | 523,613 | 106,730 | 26,720 | 0 | 63,655 |
| Washington | 143,256 | 13,427 | 14,162 | 19,237 | 6,843 | 13,282 | 507 | 261,539 | 27,149 | 5,971 | 0 | 13,915 |
| West Virginia | 30,758 | 2,466 | 2,037 | 2,151 | 45 | 78 | 521 | 11,441 | 5,713 | 1,421 | 0 | 5,960 |
| Wisconsin | 324,624 | 19,542 | 8,008 | 18,579 | 2,564 | 17,087 | 366 | 321,092 | 29,645 | 4,279 | 0 | 25,659 |
| Wyoming | 174,075 | 12,681 | 33,268 | 36,057 | 12,662 | 23,712 | 145 | 85,851 | 2,573 | 1,456 | 0 | 2,427 |
| Contig. U.S. | 35,336,921 | 2,081,710 | 2,192,169 | 2,639,566 | 756,840 | 1,482,177 | 16,375 | 19,086,558 | 5,497,167 | 1,971,765 | 0 | 2,733,450 |

## 1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| State | THOUSAND MOLES/YEAR<br>Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | 16,314 | 6,678 | 17,552 | 3,417 | 1,936 | 7,980 | 436 | 300 | 9,971 | 4,079 | 1,066 |
| Arizona | 518 | 4,525 | 4,58[illegible] | 571 | 1,010 | 6,116 | 0 | 0 | 1,905 | 1,512 | 716 |
| Arkansas | 12,300 | 10,968 | 8,886 | 1,208 | 5,495 | 17,261 | 1,459 | 1,003 | 3,998 | 2,314 | 800 |
| California | 63,471 | 119,728 | 95,862 | 14,129 | 41,886 | 620,007 | 3,064 | 2,095 | 129,559 | 95,483 | 18,332 |
| Colorado | 4,406 | 24,103 | 12,206 | 812 | 959 | 27,362 | 0 | 0 | 11,687 | 9,223 | 4,704 |
| Connecticut | 361 | 85,200 | 30,248 | 263 | 91 | 11,333 | 30 | 18 | 41,647 | 28,057 | 2,822 |
| Delaware | 5,130 | 65,825 | 23,989 | 953 | 1,959 | 45,833 | 418 | 285 | 25,076 | 15,297 | 187 |
| Dist. of Colum. | 37 | 1 | 8 | 2 | 0 | 962 | 0 | 0 | 507 | 0 | 0 |
| Florida | 13,548 | 31,629 | 32,480 | 4,536 | 12,969 | 53,035 | 1,313 | 903 | 34,226 | 19,632 | 4,659 |
| Georgia | 1,533 | 89,261 | 60,271 | 6,775 | 2,404 | 8,856 | 70 | 46 | 33,950 | 20,503 | 477 |
| Idaho | 586 | 1,262 | 6,180 | 1,309 | 641 | 146 | 0 | 0 | 2,704 | 0 | 0 |
| Illinois | 14,815 | 155,927 | 87,814 | 10,039 | 34,594 | 34,010 | 413 | 281 | 108,166 | 99,055 | 21,891 |
| Indiana | 29,513 | 91,055 | 52,611 | 4,984 | 8,950 | 52,720 | 159 | 107 | 106,575 | 100,731 | 4,171 |
| Iowa | 4,250 | 8,376 | 7,262 | 1,101 | 0 | 618 | 0 | 0 | 4,655 | 4,151 | 51 |
| Kansas | 12,034 | 25,303 | 24,818 | 504 | 22,709 | 35,534 | 511 | 352 | 6,338 | 6,968 | 5,737 |
| Kentucky | 36,623 | 45,974 | 25,391 | 2,889 | 19,795 | 42,158 | 3,537 | 2,429 | 20,442 | 25,468 | 21,275 |
| Louisiana | 200,123 | 110,317 | 56,449 | 2,158 | 93,517 | 224,368 | 21,425 | 14,706 | 74,797 | 52,235 | 12,719 |
| Maine | 3,103 | 12,090 | 17,142 | 1,126 | 11,990 | 7,851 | 0 | 7 | 8,167 | 5,864 | 1,263 |
| Maryland | 11,170 | 41,571 | 23,050 | 802 | 8,267 | 44,153 | 35 | 23 | 27,129 | 35,224 | 16,185 |
| Massachusetts | 9,372 | 42,503 | 20,370 | 623 | 7,135 | 589,487 | 11 | 14 | 211,063 | 59,628 | 30,301 |
| Michigan | 32,246 | 107,396 | 82,963 | 30,887 | 24,646 | 77,330 | 0 | 0 | 140,812 | 171,805 | 44,431 |
| Minnesota | 8,938 | 36,020 | 34,115 | 1,123 | 20,594 | 40,653 | 355 | 287 | 39,630 | 42,629 | 3,574 |
| Mississippi | 5,270 | 38,229 | 52,373 | 7,839 | 8,801 | 120,868 | 3 | 18 | 40,283 | 20,864 | 950 |
| Missouri | 64,445 | 110,870 | 111,112 | 4,222 | 32,691 | 51,235 | 7,560 | 5,193 | 113,993 | 124,222 | 22,052 |
| Montana | 2,113 | 1,102 | 4,866 | 1,001 | 585 | 69,251 | 0 | 0 | 2,037 | 884 | 0 |
| Nebraska | 1,022 | 174,553 | 66,127 | 298 | 3,637 | 9,745 | 0 | 0 | 91,437 | 73,992 | 1,067 |
| Nevada | 443 | 7,648 | 4,480 | 198 | 1,487 | 2,529 | 0 | 0 | 2,617 | 1,521 | 0 |
| New Hampshire | 379 | 17,855 | 9,612 | 2,579 | 1,143 | 13,839 | 0 | 0 | 16,020 | 18,889 | 476 |
| New Jersey | 42,779 | 62,460 | 49,732 | 1,437 | 50,991 | 253,467 | 1,916 | 1,311 | 34,635 | 26,311 | 10,755 |
| New Mexico | 9,037 | 29,731 | 47,650 | 3,422 | 34,652 | 7,707 | 0 | 0 | 731 | 0 | 0 |
| New York | 32,540 | 54,271 | 26,146 | 1,293 | 971 | 241,231 | 34 | 21 | 80,644 | 56,067 | 535 |
| North Carolina | 7,939 | 41,833 | 31,690 | 3,789 | 9,035 | 28,057 | 580 | 441 | 61,667 | 76,076 | 11,753 |
| North Dakota | 146 | 626 | 2,562 | 523 | 329 | 26,405 | 1 | 1 | 347 | 0 | 0 |
| Ohio | 32,218 | 96,735 | 61,227 | 9,669 | 15,507 | 111,125 | 744 | 491 | 194,304 | 109,469 | 22,518 |
| Oklahoma | 14,084 | 38,964 | 29,547 | 1,030 | 22,020 | 149,986 | 332 | 228 | 8,333 | 6,749 | 751 |
| Oregon | 1,857 | 15,271 | 26,732 | 6,119 | 1,073 | 2,192 | 214 | 147 | 2,950 | 5,612 | 10,662 |
| Pennsylvania | 48,375 | 135,452 | 77,008 | 5,199 | 29,161 | 142,169 | 655 | 440 | 103,069 | 83,415 | 35,760 |
| Rhode Island | 1,204 | 11,232 | 6,078 | 1,209 | 3,255 | 1,504 | 60 | 41 | 3,810 | 6,279 | 2,941 |
| South Carolina | 25,851 | 279,857 | 97,426 | 3,018 | 11,430 | 48,301 | 2,926 | 2,008 | 204,996 | 249,991 | 37,430 |
| South Dakota | 614 | 1,393 | 2,152 | 136 | 1,649 | 256 | 0 | 0 | 1,244 | 0 | 0 |
| Tennessee | 31,804 | 64,040 | 80,845 | 14,729 | 16,233 | 44,846 | 2,857 | 1,902 | 114,246 | 62,209 | 15,653 |
| Texas | 382,661 | 446,086 | 267,881 | 4,191 | 197,742 | 1,121,469 | 23,155 | 15,781 | 345,397 | 262,027 | 39,003 |
| Utah | 1,775 | 2,313 | 4,016 | 369 | 2,494 | 8,740 | 6 | 4 | 1,190 | 293 | 16 |
| Vermont | 239 | 3,455 | 1,874 | 689 | 150 | 1,077 | 0 | 0 | 2,731 | 3,385 | 189 |
| Virginia | 16,422 | 45,510 | 31,955 | 8,252 | 15,623 | 51,993 | 1,334 | 885 | 67,706 | 43,748 | 24,541 |
| Washington | 7,344 | 11,574 | 21,626 | 3,314 | 8,376 | 33,695 | 372 | 256 | 11,338 | 3,257 | 1,140 |
| West Virginia | 948 | 2,162 | 13,902 | 3,251 | 310 | 9,113 | 92 | 63 | 3,038 | 0 | 34 |
| Wisconsin | 6,046 | 71,231 | 44,246 | 4,215 | 13,457 | 11,347 | 52 | 35 | 53,830 | 59,562 | 32,876 |
| Wyoming | 4,828 | 4,039 | 7,334 | 907 | 3,565 | 28,278 | 3 | 2 | 2,006 | 0 | 1 |
| Contig. U.S. | 1,222,772 | 2,884,205 | 1,904,454 | 183,111 | 807,915 | 4,538,201 | 76,133 | 52,123 | 2,607,605 | 2,094,680 | 466,463 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, POINT SOURCES

| EPA REGION | | | | | | | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| REGION 1 | 551,416 | 18,391 | 147,817 | 4,120 | 245 | 77,474 | 3,616 | 211 | 1 | 50,610 | 312 | 183 | 169 | 80 | 165,525 | 193,270 |
| REGION 2 | 993,656 | 30,165 | 407,303 | 12,995 | 16 | 197,670 | 11,642 | 2,177 | 15 | 344,098 | 1,404 | 1,168 | 559 | 315 | 194,976 | 261,572 |
| REGION 3 | 3,598,182 | 91,235 | 1,043,191 | 34,072 | 1,220 | 1,056,928 | 85,718 | 13,134 | 13,102 | 410,825 | 10,367 | 4,162 | 1,713 | 1,991 | 310,275 | 372,620 |
| REGION 4 | 6,050,014 | 168,343 | 1,845,161 | 62,350 | 609 | 1,150,505 | 129,092 | 48,025 | 62,827 | 748,391 | 13,766 | 4,664 | 2,049 | 1,306 | 711,351 | 787,258 |
| REGION 5 | 7,443,167 | 156,424 | 2,157,119 | 75,651 | 3,221 | 1,650,111 | 163,367 | 26,118 | 70,781 | 1,049,623 | 38,742 | 10,528 | 4,869 | 7,451 | 686,791 | 823,082 |
| REGION 6 | 1,680,493 | 85,504 | 2,000,537 | 101,988 | 432 | 3,625,550 | 35,469 | 10,657 | 47,272 | 642,899 | 13,762 | 3,265 | 696 | 751 | 1,173,369 | 1,364,521 |
| REGION 7 | 1,835,991 | 36,040 | 654,668 | 25,610 | 390 | 206,525 | 44,601 | 5,733 | 19,717 | 550,184 | 22,074 | 4,103 | 1,124 | 429 | 274,370 | 323,954 |
| REGION 8 | 666,208 | 46,237 | 448,960 | 16,283 | 711 | 437,389 | 27,970 | 3,731 | 11,893 | 244,356 | 8,339 | 2,758 | 1,362 | 2,220 | 59,924 | 75,580 |
| REGION 9 | 1,355,839 | 58,220 | 459,300 | 21,001 | 295 | 432,223 | 12,377 | 1,644 | 9,663 | 191,855 | 3,359 | 800 | 181 | 304 | 313,603 | 370,628 |
| REGION 10 | 329,776 | 34,790 | 120,555 | 4,418 | 556 | 293,733 | 5,800 | 1,753 | 10,197 | 131,406 | 1,684 | 396 | 253 | 627 | 73,074 | 84,559 |
| Contig. U.S. | 24,504,741 | 725,349 | 9,284,610 | 358,489 | 7,695 | 9,128,108 | 519,652 | 113,183 | 245,467 | 4,364,247 | 113,808 | 32,025 | 12,975 | 15,474 | 3,963,258 | 4,657,042 |

| EPA REGION | | | | | | | METRIC TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| REGION 1 | 500,245 | 16,684 | 134,100 | 3,738 | 222 | 70,285 | 3,280 | 191 | 0 | 45,914 | 283 | 166 | 153 | 72 | 150,164 | 175,335 |
| REGION 2 | 901,447 | 27,366 | 369,506 | 11,789 | 15 | 179,327 | 10,562 | 1,975 | 14 | 312,166 | 1,274 | 1,059 | 507 | 286 | 176,883 | 237,298 |
| REGION 3 | 3,264,279 | 82,769 | 946,385 | 30,910 | 1,107 | 958,847 | 77,764 | 11,915 | 11,886 | 372,701 | 9,405 | 3,775 | 1,554 | 1,806 | 281,482 | 338,042 |
| REGION 4 | 5,488,586 | 152,721 | 1,673,934 | 56,564 | 552 | 1,043,741 | 117,113 | 43,568 | 56,997 | 678,942 | 12,489 | 4,231 | 1,859 | 1,185 | 645,340 | 714,202 |
| REGION 5 | 6,752,457 | 141,908 | 1,956,943 | 68,631 | 2,922 | 1,496,984 | 148,207 | 23,694 | 64,213 | 952,220 | 35,147 | 9,551 | 4,417 | 6,760 | 623,058 | 746,702 |
| REGION 6 | 1,524,547 | 77,569 | 1,814,892 | 92,524 | 392 | 3,289,107 | 32,178 | 9,668 | 42,885 | 583,239 | 12,485 | 2,962 | 632 | 682 | 1,064,483 | 1,237,896 |
| REGION 7 | 1,665,615 | 32,696 | 593,916 | 23,234 | 354 | 187,360 | 40,462 | 5,201 | 17,887 | 499,128 | 20,026 | 3,722 | 1,020 | 389 | 248,909 | 293,891 |
| REGION 8 | 604,385 | 41,946 | 407,298 | 14,772 | 645 | 396,800 | 25,374 | 3,385 | 10,789 | 221,681 | 7,565 | 2,502 | 1,236 | 2,014 | 54,363 | 68,566 |
| REGION 9 | 1,230,020 | 52,817 | 416,678 | 19,052 | 268 | 392,114 | 11,228 | 1,491 | 8,766 | 174,051 | 3,047 | 726 | 164 | 275 | 284,501 | 336,235 |
| REGION 10 | 299,174 | 31,562 | 109,367 | 4,008 | 504 | 266,475 | 5,262 | 1,590 | 9,251 | 119,212 | 1,527 | 359 | 229 | 569 | 66,293 | 76,712 |
| Contig. U.S. | 22,230,755 | 658,038 | 8,423,019 | 325,222 | 6,981 | 8,281,040 | 471,429 | 102,680 | 222,688 | 3,959,255 | 103,247 | 29,053 | 11,771 | 14,038 | 3,595,476 | 4,224,879 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| EPA REGION | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| REGION 1 | 1,496,786 | 38,641 | 30,180 | 171,399 | 9,442 | 46,297 | 215 | 550,574 | 42,713 | 7,679 | 0 | 55,990 |
| REGION 2 | 3,627,539 | 74,142 | 179,839 | 287,392 | 50,198 | 161,406 | 229 | 755,498 | 102,990 | 35,580 | 0 | 82,336 |
| REGION 3 | 3,011,685 | 274,416 | 260,901 | 253,346 | 106,661 | 101,572 | 1,500 | 1,362,742 | 371,530 | 64,053 | 0 | 180,050 |
| REGION 4 | 3,742,627 | 293,680 | 217,021 | 258,919 | 94,873 | 83,495 | 6,272 | 4,048,255 | 793,994 | 213,133 | 0 | 544,985 |
| REGION 5 | 6,996,555 | 379,735 | 169,467 | 237,369 | 60,717 | 179,422 | 2,297 | 3,461,093 | 768,644 | 100,114 | 0 | 377,927 |
| REGION 6 | 9,726,139 | 578,834 | 782,573 | 869,411 | 245,226 | 587,699 | 1,711 | 5,540,877 | 2,576,042 | 1,338,768 | 0 | 1,064,978 |
| REGION 7 | 2,523,755 | 149,684 | 113,169 | 58,280 | 20,699 | 57,633 | 493 | 1,258,645 | 465,332 | 128,917 | 0 | 201,502 |
| REGION 8 | 802,551 | 44,240 | 64,954 | 74,516 | 26,864 | 47,345 | 601 | 270,432 | 30,920 | 8,127 | 0 | 11,888 |
| REGION 9 | 2,834,868 | 208,259 | 350,497 | 398,759 | 133,045 | 202,244 | 1,439 | 1,387,539 | 276,353 | 60,915 | 0 | 183,733 |
| REGION 10 | 574,416 | 40,080 | 23,569 | 30,175 | 9,114 | 15,064 | 1,619 | 450,904 | 68,649 | 14,478 | 0 | 30,061 |
| Contig. U.S. | 35,336,921 | 2,081,710 | 2,192,169 | 2,639,566 | 756,840 | 1,482,177 | 16,375 | 19,086,558 | 5,497,167 | 1,971,765 | 0 | 2,733,450 |

| EPA REGION | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| REGION 1 | 14,658 | 172,335 | 85,323 | 6,490 | 23,763 | 625,091 | 101 | 81 | 283,438 | 122,102 | 37,992 |
| REGION 2 | 75,319 | 116,731 | 75,878 | 2,730 | 51,962 | 494,697 | 1,950 | 1,332 | 115,279 | 82,378 | 11,289 |
| REGION 3 | 82,083 | 290,522 | 169,912 | 18,460 | 55,320 | 294,224 | 2,534 | 1,697 | 226,526 | 177,684 | 76,708 |
| REGION 4 | 138,881 | 597,501 | 398,030 | 46,993 | 82,603 | 354,101 | 11,723 | 8,047 | 519,781 | 478,821 | 93,263 |
| REGION 5 | 123,776 | 558,363 | 362,975 | 60,918 | 117,748 | 327,185 | 1,723 | 1,201 | 643,317 | 583,250 | 129,461 |
| REGION 6 | 618,203 | 636,065 | 410,413 | 12,009 | 353,426 | 1,520,791 | 46,371 | 31,718 | 433,257 | 323,325 | 53,272 |
| REGION 7 | 81,751 | 319,103 | 209,319 | 6,125 | 59,037 | 97,133 | 8,071 | 5,544 | 216,423 | 209,334 | 28,907 |
| REGION 8 | 13,883 | 33,577 | 33,136 | 3,747 | 9,582 | 160,293 | 10 | 7 | 18,511 | 10,401 | 4,722 |
| REGION 9 | 64,431 | 131,902 | 104,931 | 14,898 | 44,383 | 628,653 | 3,064 | 2,095 | 134,081 | 98,515 | 19,048 |
| REGION 10 | 9,787 | 28,107 | 54,538 | 10,742 | 10,090 | 36,033 | 586 | 402 | 16,992 | 8,869 | 11,802 |
| Contig. U.S. | 1,222,772 | 2,884,205 | 1,904,454 | 183,111 | 807,915 | 4,538,201 | 76,133 | 52,123 | 2,607,605 | 2,094,680 | 466,463 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

| State | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alabama | 857,549 | 32,991 | 457,653 | 29,603 | 681 | 1,811,119 | 19,542 | 3,539 | 11,964 | 439,271 | 1,604 | 488 | 356 | 280 | 391,455 | 425,591 |
| Arizona | 844,078 | 30,871 | 245,625 | 18,269 | 366 | 1,310,433 | 8,937 | 1,087 | 11,921 | 841,489 | 1,175 | 334 | 111 | 57 | 254,096 | 271,243 |
| Arkansas | 87,127 | 10,478 | 194,532 | 16,611 | 264 | 1,045,560 | 1,786 | 1,445 | 25,418 | 874,245 | 307 | 95 | 23 | 48 | 223,135 | 234,377 |
| California | 519,799 | 35,917 | 1,268,139 | 114,625 | 2,643 | 9,524,250 | 472 | 165 | 32,013 | 1,536,414 | 1,777 | 375 | 48 | 235 | 2,216,485 | 2,414,927 |
| Colorado | 140,138 | 9,347 | 284,405 | 20,372 | 756 | 2,302,185 | 9,110 | 1,186 | 24,987 | 1,134,995 | 2,320 | 445 | 177 | 119 | 356,946 | 385,554 |
| Connecticut | 63,665 | 8,110 | 128,656 | 11,094 | 381 | 1,192,328 | 491 | 0 | 1,946 | 120,226 | 28 | 8 | 3 | 3 | 284,183 | 299,090 |
| Delaware | 124,669 | 4,645 | 58,416 | 3,850 | 71 | 242,885 | 1,152 | 184 | 2,051 | 49,382 | 167 | 176 | 84 | 45 | 77,101 | 81,188 |
| Dist. of Colum. | 15,325 | 1,121 | 23,194 | 2,158 | 39 | 338,780 | 655 | 23 | 59 | 15,099 | 7 | 7 | 4 | 2 | 44,081 | 48,400 |
| Florida | 1,102,994 | 30,793 | 663,745 | 48,464 | 1,087 | 4,071,755 | 8,834 | 29,228 | 28,793 | 919,841 | 6,269 | 931 | 201 | 84 | 828,561 | 868,694 |
| Georgia | 900,080 | 30,684 | 553,085 | 37,565 | 697 | 2,335,826 | 20,453 | 2,503 | 35,359 | 882,031 | 299 | 263 | 201 | 222 | 508,361 | 530,222 |
| Idaho | 56,210 | 8,676 | 82,313 | 9,561 | 548 | 1,280,507 | 329 | 242 | 8,133 | 330,728 | 87 | 23 | 10 | 37 | 222,050 | 230,398 |
| Illinois | 1,464,520 | 42,270 | 909,708 | 63,279 | 2,635 | 4,246,797 | 34,318 | 7,937 | 68,633 | 932,702 | 5,892 | 1,899 | 708 | 899 | 988,586 | 1,092,842 |
| Indiana | 1,970,870 | 38,111 | 741,610 | 45,233 | 1,101 | 2,374,627 | 33,494 | 4,607 | 29,361 | 496,649 | 5,026 | 2,324 | 1,694 | 4,565 | 562,647 | 623,821 |
| Iowa | 334,278 | 11,010 | 284,792 | 20,962 | 427 | 1,105,666 | 11,505 | 1,706 | 80,410 | 1,237,845 | 3,038 | 685 | 386 | 54 | 237,157 | 258,603 |
| Kansas | 228,074 | 7,409 | 479,624 | 33,690 | 250 | 1,072,560 | 6,614 | 799 | 34,189 | 1,852,371 | 354 | 103 | 42 | 22 | 250,269 | 298,662 |
| Kentucky | 1,150,036 | 23,108 | 519,674 | 31,680 | 519 | 1,594,516 | 22,635 | 3,841 | 8,185 | 452,395 | 1,734 | 970 | 349 | 183 | 441,688 | 469,555 |
| Louisiana | 401,333 | 24,581 | 664,196 | 44,770 | 554 | 2,541,546 | 857 | 1,761 | 26,314 | 559,071 | 407 | 58. | 133 | 219 | 625,559 | 669,847 |
| Maine | 133,369 | 11,223 | 62,433 | 4,635 | 124 | 506,637 | 40 | 5 | 417 | 127,174 | 72 | 21 | 75 | 36 | 141,991 | 149,051 |
| Maryland | 303,471 | 10,727 | 242,626 | 19,477 | 456 | 1,459,780 | 6,559 | 1,307 | 2,992 | 227,611 | 442 | 217 | 101 | 79 | 363,270 | 394,420 |
| Massachusetts | 358,065 | 14,498 | 251,390 | 19,380 | 666 | 2,133,002 | 2,261 | 86 | 104 | 210,504 | 193 | 142 | 65 | 35 | 515,765 | 568,190 |
| Michigan | 841,399 | 32,609 | 668,742 | 46,435 | 1,148 | 3,613,069 | 22,871 | 3,150 | 10,433 | 880,263 | 9,496 | 1,217 | 482 | 565 | 916,363 | 987,380 |
| Minnesota | 238,705 | 14,535 | 340,540 | 26,090 | 469 | 1,928,665 | 8,820 | 1,120 | 48,624 | 1,199,026 | 2,218 | 624 | 160 | 79 | 469,214 | 496,094 |
| Mississippi | 303,846 | 11,281 | 274,714 | 19,797 | 297 | 991,881 | 2,599 | 314 | 7,809 | 587,204 | 125 | 68 | 86 | 41 | 261,800 | 278,672 |
| Missouri | 1,333,218 | 22,746 | 515,805 | 33,992 | 849 | 2,206,090 | 22,184 | 2,681 | 17,264 | 2,877,954 | 18,356 | 3,228 | 685 | 347 | 629,726 | 673,526 |
| Montana | 169,224 | 7,583 | 127,844 | 12,455 | 310 | 1,422,156 | 2,003 | 243 | 3,890 | 880,654 | 129 | 56 | 23 | 26 | 236,467 | 245,600 |
| Nebraska | 78,117 | 4,078 | 160,005 | 13,034 | 199 | 609,510 | 4,637 | 582 | 44,683 | 1,080,992 | 326 | 87 | 12 | 6 | 168,618 | 178,920 |
| Nevada | 148,157 | 6,667 | 90,658 | 6,260 | 107 | 521,365 | 3,554 | 444 | 705 | 919,646 | 407 | 91 | 21 | 12 | 93,948 | 99,725 |
| New Hampshire | 108,484 | 4,867 | 55,291 | 3,666 | 100 | 352,582 | 1,036 | 124 | 1 | 66,310 | 15 | 9 | 23 | 3 | 103,987 | 109,401 |
| New Jersey | 309,856 | 20,690 | 387,707 | 29,802 | 706 | 2,294,053 | 2,566 | 328 | 80 | 402,215 | 37 | 24 | 11 | 6 | 696,758 | 749,784 |
| New Mexico | 262,555 | 9,202 | 237,643 | 16,473 | 174 | 932,466 | 8,299 | 977 | 4,523 | 1,249,009 | 923 | 409 | 178 | 105 | 191,042 | 213,500 |
| New York | 870,307 | 43,230 | 688,092 | 48,752 | 1,273 | 4,758,845 | 9,269 | 1,880 | 13,961 | 802,715 | 1,367 | 1,144 | 548 | 310 | 1,160,860 | 1,267,046 |
| North Carolina | 655,591 | 31,046 | 499,064 | 33,611 | 727 | 2,289,334 | 23,667 | 3,310 | 21,118 | 700,462 | 2,247 | 943 | 303 | 165 | 614,002 | 655,149 |
| North Dakota | 115,391 | 11,574 | 128,008 | 8,083 | 72 | 282,219 | 119 | 60 | 6,642 | 1,295,268 | 777 | 786 | 371 | 199 | 53,274 | 58,166 |
| Ohio | 2,681,314 | 51,554 | 1,145,357 | 72,251 | 2,160 | 4,697,200 | 50,783 | 7,934 | 16,124 | 1,070,910 | 7,714 | 3,538 | 1,500 | 1,131 | 1,001,059 | 1,092,677 |
| Oklahoma | 104,168 | 9,558 | 422,056 | 31,010 | 412 | 1,854,007 | 5,765 | 768 | 15,266 | 1,107,180 | 5,438 | 648 | 34 | 29 | 324,988 | 347,352 |
| Oregon | 55,987 | 18,601 | 207,286 | 19,481 | 334 | 1,454,001 | 729 | 92 | 4,249 | 1,849,960 | 1,103 | 54 | 54 | 310 | 340,267 | 363,147 |
| Pennsylvania | 1,899,006 | 60,532 | 976,345 | 65,211 | 1,918 | 4,377,701 | 42,015 | 5,525 | 24,309 | 1,432,694 | 6,383 | 2,006 | 826 | 1,400 | 1,043,563 | 1,113,027 |
| Rhode Island | 14,168 | 1,491 | 33,295 | 2,958 | 82 | 316,586 | 27 | 0 | 0 | 32,323 | 1 | 0 | 1 | 1 | 81,042 | 86,846 |
| South Carolina | 344,968 | 17,550 | 259,758 | 18,334 | 459 | 1,207,907 | 9,045 | 1,648 | 4,440 | 451,493 | 486 | 337 | 178 | 122 | 474,791 | 501,073 |
| South Dakota | 40,863 | 3,798 | 73,063 | 6,293 | 70 | 509,495 | 235 | 38 | 12,941 | 715,996 | 2,168 | 475 | 89 | 9 | 95,639 | 101,160 |
| Tennessee | 1,158,153 | 28,905 | 498,219 | 33,117 | 732 | 1,951,470 | 23,436 | 4,357 | 18,117 | 656,159 | 1,002 | 665 | 375 | 209 | 554,586 | 587,715 |
| Texas | 1,324,373 | 59,869 | 3,122,306 | 207,728 | 2,169 | 9,063,470 | 19,257 | 5,900 | 61,713 | 5,937,876 | 6,686 | 2,056 | 329 | 351 | 2,172,905 | 2,381,939 |
| Utah | 116,615 | 8,886 | 145,205 | 10,552 | 191 | 990,051 | 3,588 | 511 | 1,961 | 690,811 | 2,831 | 892 | 658 | 1,844 | 160,449 | 172,386 |
| Vermont | 8,185 | 1,764 | 21,631 | 2,149 | 62 | 202,077 | 12 | 0 | 3 | 100,889 | 3 | 3 | 1 | 2 | 58,570 | 61,481 |
| Virginia | 370,780 | 21,579 | 355,772 | 27,662 | 646 | 2,322,403 | 7,328 | 1,385 | 10,913 | 466,354 | 2,422 | 1,090 | 402 | 223 | 527,715 | 561,508 |
| Washington | 317,791 | 19,758 | 270,908 | 23,738 | 505 | 2,401,774 | 5,062 | 1,516 | 18,097 | 347,565 | 494 | 319 | 188 | 280 | 465,326 | 494,352 |
| West Virginia | 1,145,522 | 27,902 | 440,190 | 20,824 | 618 | 784,971 | 29,078 | 4,861 | 335 | 381,995 | 946 | 666 | 296 | 240 | 154,780 | 161,785 |
| Wisconsin | 670,610 | 23,795 | 380,932 | 26,842 | 592 | 1,892,865 | 15,406 | 2,328 | 32,054 | 706,684 | 8,395 | 927 | 324 | 213 | 476,956 | 512,284 |
| Wyoming | 211,134 | 13,388 | 234,634 | 14,273 | 86 | 589,965 | 13,110 | 1,727 | 5,159 | 486,720 | 116 | 103 | 44 | 25 | 102,467 | 111,091 |
| Contig. U.S. | 26,954,136 | 975,608 | 20,877,086 | 1,475,151 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 113,808 | 32,025 | 12,975 | 15,474 | 23,164,547 | 24,977,459 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

| State | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alabama | 777,969 | 29,929 | 415,180 | 26,855 | 618 | 1,643,026 | 17,729 | 3,211 | 10,854 | 398,501 | 1,455 | 443 | 323 | 254 | 355,123 | 386,090 |
| Arizona | 765,749 | 28,006 | 222,829 | 16,574 | 332 | 1,188,806 | 8,108 | 986 | 10,815 | 763,386 | 1,066 | 303 | 101 | 52 | 230,512 | 246,068 |
| Arkansas | 79,041 | 9,506 | 176,477 | 15,069 | 239 | 948,518 | 1,620 | 1,311 | 23,059 | 793,102 | 278 | 86 | 21 | 44 | 202,425 | 212,624 |
| California | 471,560 | 32,584 | 1,150,441 | 103,987 | 2,398 | 8,640,261 | 428 | 132 | 29,042 | 1,393,814 | 1,612 | 340 | 44 | 213 | 2,010,766 | 2,190,791 |
| Colorado | 127,133 | 8,480 | 258,011 | 18,481 | 686 | 2,088,509 | 8,265 | 1,076 | 22,668 | 1,029,652 | 2,104 | 404 | 160 | 108 | 323,817 | 349,769 |
| Connecticut | 57,756 | 7,357 | 116,715 | 10,664 | 346 | 1,081,662 | 445 | 0 | 1,765 | 109,067 | 26 | 7 | 3 | 3 | 257,807 | 271,330 |
| Delaware | 113,099 | 4,214 | 52,994 | 3,493 | 64 | 220,342 | 1,045 | 167 | 1,861 | 44,799 | 151 | 160 | 77 | 41 | 69,945 | 73,653 |
| Dist. of Colum. | 13,903 | 1,017 | 21,041 | 1,958 | 35 | 307,336 | 594 | 21 | 54 | 13,698 | 6 | 6 | 3 | 2 | 39,990 | 43,907 |
| Florida | 1,000,637 | 27,935 | 602,144 | 43,966 | 986 | 3,693,837 | 8,014 | 26,516 | 26,121 | 834,467 | 5,687 | 844 | 183 | 76 | 751,659 | 788,067 |
| Georgia | 816,554 | 27,837 | 501,755 | 34,079 | 632 | 2,119,029 | 18,555 | 2,271 | 32,077 | 800,166 | 271 | 239 | 182 | 202 | 461,178 | 481,010 |
| Idaho | 50,993 | 7,871 | 74,674 | 8,673 | 497 | 1,161,657 | 298 | 220 | 7,378 | 300,032 | 79 | 21 | 9 | 33 | 201,440 | 209,014 |
| Illinois | 1,328,614 | 38,347 | 825,281 | 57,406 | 2,390 | 3,852,635 | 31,133 | 7,200 | 62,263 | 846,136 | 5,345 | 1,723 | 642 | 816 | 896,833 | 991,413 |
| Indiana | 1,787,975 | 34,574 | 672,785 | 41,035 | 999 | 2,154,231 | 30,386 | 4,179 | 26,636 | 450,556 | 4,559 | 2,108 | 1,537 | 4,142 | 510,426 | 565,923 |
| Iowa | 303,258 | 9,988 | 258,361 | 19,017 | 387 | 1,003,044 | 10,437 | 1,548 | 72,947 | 1,122,956 | 2,756 | 621 | 350 | 49 | 215,146 | 234,601 |
| Kansas | 206,909 | 6,721 | 435,111 | 30,563 | 227 | 973,011 | 6,000 | 725 | 31,016 | 1,680,443 | 321 | 94 | 38 | 20 | 227,041 | 270,943 |
| Kentucky | 1,043,314 | 20,964 | 471,446 | 28,739 | 471 | 1,446,523 | 20,535 | 3,485 | 7,425 | 410,408 | 1,573 | 880 | 317 | 166 | 400,695 | 425,975 |
| Louisiana | 364,088 | 22,300 | 602,556 | 40,615 | 503 | 2,305,669 | 777 | 1,598 | 23,872 | 507,183 | 369 | 52 | 120 | 199 | 567,503 | 607,681 |
| Maine | 120,992 | 10,181 | 56,638 | 4,205 | 112 | 459,614 | 36 | 5 | 379 | 115,371 | 65 | 19 | 68 | 33 | 128,812 | 135,217 |
| Maryland | 275,309 | 9,731 | 220,108 | 16,762 | 414 | 1,324,291 | 5,950 | 1,186 | 2,715 | 206,486 | 401 | 197 | 92 | 72 | 329,554 | 357,813 |
| Massachusetts | 324,836 | 13,152 | 228,058 | 17,581 | 604 | 1,935,027 | 2,033 | 78 | 94 | 190,966 | 175 | 129 | 59 | 32 | 467,896 | 515,456 |
| Michigan | 763,319 | 29,583 | 606,860 | 42,125 | 1,041 | 3,277,726 | 20,749 | 2,858 | 9,465 | 798,564 | 8,615 | 1,104 | 438 | 512 | 831,314 | 895,740 |
| Minnesota | 216,554 | 13,186 | 308,935 | 23,668 | 425 | 1,749,656 | 8,002 | 1,016 | 44,111 | 1,087,740 | 2,012 | 566 | 145 | 71 | 425,665 | 450,050 |
| Mississippi | 275,649 | 10,234 | 249,218 | 17,959 | 269 | 899,821 | 2,358 | 285 | 7,084 | 532,703 | 113 | 61 | 78 | 37 | 237,502 | 252,808 |
| Missouri | 1,209,497 | 20,635 | 467,935 | 30,837 | 770 | 2,001,333 | 20,125 | 2,432 | 15,662 | 2,610,841 | 16,652 | 2,928 | 621 | 315 | 571,281 | 611,016 |
| Montana | 153,520 | 6,879 | 115,979 | 11,299 | 281 | 1,290,161 | 1,817 | 220 | 3,529 | 798,916 | 117 | 51 | 21 | 24 | 214,520 | 222,805 |
| Nebraska | 70,868 | 3,700 | 145,155 | 11,824 | 181 | 552,938 | 4,207 | 528 | 40,536 | 980,660 | 296 | 79 | 11 | 6 | 152,968 | 162,315 |
| Nevada | 134,408 | 6,048 | 82,244 | 5,679 | 97 | 472,975 | 3,224 | 403 | 640 | 834,289 | 369 | 83 | 19 | 11 | 85,228 | 90,469 |
| New Hampshire | 98,417 | 4,415 | 50,160 | 3,326 | 91 | 319,857 | 940 | 112 | 1 | 60,155 | 13 | 8 | 21 | 3 | 94,335 | 99,247 |
| New Jersey | 281,101 | 18,770 | 351,724 | 27,036 | 640 | 2,081,131 | 2,328 | 298 | 73 | 364,885 | 34 | 22 | 10 | 5 | 632,090 | 680,194 |
| New Mexico | 238,190 | 8,348 | 215,589 | 14,944 | 158 | 845,919 | 7,529 | 886 | 4,103 | 1,133,083 | 838 | 371 | 161 | 95 | 173,311 | 193,684 |
| New York | 789,543 | 39,218 | 624,231 | 44,227 | 1,155 | 4,317,154 | 8,409 | 1,706 | 12,665 | 728,215 | 1,240 | 1,038 | 497 | 281 | 1,053,116 | 1,149,447 |
| North Carolina | 594,752 | 28,165 | 452,748 | 30,491 | 660 | 2,076,851 | 21,471 | 3,003 | 19,158 | 635,450 | 2,038 | 855 | 275 | 150 | 557,015 | 594,343 |
| North Dakota | 104,683 | 10,500 | 116,128 | 7,333 | 65 | 256,026 | 108 | 54 | 6,025 | 1,175,048 | 705 | 713 | 336 | 180 | 48,330 | 52,767 |
| Ohio | 2,432,493 | 46,770 | 1,039,061 | 65,545 | 1,960 | 4,261,240 | 46,070 | 7,198 | 14,627 | 971,518 | 6,998 | 3,209 | 1,361 | 1,026 | 908,147 | 991,263 |
| Oklahoma | 94,501 | 8,671 | 382,885 | 28,132 | 374 | 1,681,933 | 5,230 | 697 | 13,849 | 1,004,418 | 4,933 | 588 | 31 | 26 | 294,825 | 315,114 |
| Oregon | 50,791 | 16,875 | 188,047 | 17,673 | 303 | 1,319,048 | 661 | 83 | 3,855 | 1,678,256 | 1,001 | 49 | 49 | 281 | 308,686 | 329,442 |
| Pennsylvania | 1,722,780 | 54,914 | 885,733 | 59,159 | 1,740 | 3,971,392 | 38,116 | 5,012 | 22,053 | 1,299,721 | 5,791 | 1,820 | 749 | 1,270 | 946,707 | 1,009,724 |
| Rhode Island | 12,853 | 1,353 | 30,205 | 2,683 | 74 | 287,202 | 24 | 0 | 0 | 29,323 | 1 | 0 | 1 | 1 | 73,520 | 78,786 |
| South Carolina | 312,955 | 15,921 | 235,651 | 16,632 | 416 | 1,095,796 | 8,206 | 1,495 | 4,028 | 409,590 | 441 | 305 | 161 | 110 | 430,726 | 454,570 |
| South Dakota | 37,071 | 3,446 | 66,282 | 5,709 | 64 | 462,206 | 213 | 34 | 11,740 | 649,541 | 1,967 | 431 | 80 | 8 | 86,762 | 91,771 |
| Tennessee | 1,050,678 | 26,223 | 451,981 | 30,043 | 664 | 1,770,347 | 21,261 | 3,953 | 16,435 | 595,260 | 909 | 603 | 340 | 190 | 503,114 | 533,168 |
| Texas | 1,201,469 | 54,313 | 2,832,530 | 188,449 | 1,968 | 8,222,279 | 17,470 | 5,352 | 55,986 | 5,386,757 | 6,066 | 1,865 | 298 | 318 | 1,971,239 | 2,160,874 |
| Utah | 105,793 | 8,061 | 131,729 | 9,572 | 173 | 898,160 | 3,255 | 464 | 1,779 | 626,694 | 2,568 | 810 | 597 | 1,672 | 145,557 | 156,386 |
| Vermont | 7,425 | 1,600 | 19,624 | 1,949 | 56 | 183,321 | 11 | 0 | 2 | 91,525 | 2 | 2 | 1 | 2 | 53,134 | 55,775 |
| Virginia | 336,371 | 19,576 | 322,753 | 25,095 | 586 | 2,106,855 | 6,648 | 1,256 | 9,900 | 423,071 | 2,197 | 989 | 365 | 203 | 478,736 | 509,394 |
| Washington | 288,300 | 17,924 | 245,765 | 21,535 | 458 | 2,178,857 | 4,592 | 1,375 | 16,418 | 315,307 | 448 | 289 | 171 | 254 | 422,137 | 448,470 |
| West Virginia | 1,039,220 | 25,313 | 399,340 | 18,891 | 561 | 712,116 | 26,380 | 4,410 | 304 | 346,541 | 858 | 604 | 268 | 218 | 140,414 | 146,769 |
| Wisconsin | 608,378 | 21,587 | 345,578 | 24,351 | 537 | 1,717,179 | 13,976 | 2,112 | 29,079 | 641,095 | 7,616 | 841 | 294 | 193 | 432,688 | 464,738 |
| Wyoming | 191,541 | 12,146 | 212,859 | 12,948 | 78 | 535,209 | 11,893 | 1,567 | 4,681 | 441,545 | 105 | 93 | 40 | 22 | 92,956 | 100,780 |
| Contig. U.S. | 24,452,809 | 885,069 | 18,939,536 | 1,338,240 | 28,787 | 90,091,713 | 477,664 | 104,722 | 760,828 | 38,661,905 | 103,247 | 29,053 | 11,771 | 14,038 | 21,014,593 | 22,659,252 |

1980 NAPAP 5.2 EMISSIONS INVENTORY · ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

| State | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Penta | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes |
| Alabama | 1,573,771 | 209,627 | 155,998 | 320,528 | 116,617 | 35,204 | 5,329 | 2,319,833 | 756,285 | 257,270 | 2,395 | 482,416 |
| Arizona | 896,985 | 53,822 | 24,755 | 150,781 | 26,862 | 14,227 | 1,646 | 1,520,405 | 656,653 | 181,695 | 1,725 | 422,069 |
| Arkansas | 558,234 | 52,601 | 25,129 | 140,577 | 30,055 | 24,437 | 3,369 | 1,305,146 | 503,046 | 177,029 | 1,458 | 321,801 |
| California | 10,260,471 | 633,765 | 484,114 | 1,862,844 | 382,842 | 375,136 | 16,040 | 13,384,252 | 3,927,557 | 1,541,610 | 7,648 | 2,684,126 |
| Colorado | 1,485,865 | 93,589 | 36,497 | 271,698 | 40,933 | 29,7[illegible] | 3,191 | 2,127,989 | 794,754 | 263,880 | 2,383 | 517,496 |
| Connecticut | 732,077 | 72,370 | 25,185 | 181,076 | 29,891 | 19,613 | 7,270 | 1,606,122 | 353,013 | 170,873 | 558 | 309,577 |
| Delaware | 205,177 | 17,314 | 11,797 | 52,016 | 10,594 | 13,841 | 922 | 381,500 | 100,872 | 46,113 | 321 | 80,139 |
| Dist. of Colum. | 204,402 | 23,401 | 1,196 | 18,458 | 3,051 | 385 | 105 | 290,630 | 72,146 | 82,772 | 131 | 32,585 |
| Florida | 1,996,490 | 190,339 | 64,620 | 603,312 | 111,848 | 90,327 | 4,996 | 5,048,220 | 1,667,630 | 660,287 | 3,215 | 1,153,037 |
| Georgia | 1,085,897 | 106,257 | 51,751 | 360,837 | 76,178 | 62,646 | 6,224 | 2,946,840 | 981,268 | 325,575 | 2,947 | 700,443 |
| Idaho | 430,560 | 28,034 | 59,608 | 105,347 | 48,168 | 38,322 | 2,387 | 1,109,709 | 971,704 | 73,974 | 768 | 629,825 |
| Illinois | 5,380,945 | 325,420 | 129,931 | 666,352 | 127,598 | 113,602 | 12,821 | 5,880,990 | 1,480,249 | 633,184 | 5,548 | 1,087,219 |
| Indiana | 3,147,863 | 193,805 | 71,539 | 339,975 | 61,311 | 55,777 | 11,583 | 3,242,282 | 883,593 | 341,907 | 4,005 | 594,963 |
| Iowa | 1,139,796 | 54,180 | 15,863 | 174,794 | 30,326 | 22,480 | 1,305 | 1,560,840 | 427,234 | 194,612 | 1,667 | 268,938 |
| Kansas | 2,474,816 | 155,411 | 105,469 | 189,434 | 42,278 | 58,562 | 1,112 | 1,446,173 | 480,608 | 170,076 | 2,744 | 298,532 |
| Kentucky | 1,374,175 | 124,553 | 76,867 | 282,557 | 60,201 | 61,642 | 7,962 | 2,670,051 | 914,457 | 270,926 | 2,320 | 681,889 |
| Louisiana | 2,084,408 | 245,672 | 197,016 | 372,151 | 91,413 | 123,265 | 2,452 | 3,488,418 | 1,800,977 | 827,238 | 2,032 | 931,941 |
| Maine | 309,467 | 51,938 | 26,038 | 70,755 | 13,461 | 23,856 | 8,232 | 661,775 | 129,826 | 63,819 | 270 | 152,992 |
| Maryland | 1,393,384 | 213,749 | 182,598 | 363,460 | 125,305 | 50,603 | 5,860 | 2,062,491 | 489,473 | 226,538 | 1,069 | 387,379 |
| Massachusetts | 2,766,519 | 130,616 | 51,565 | 461,183 | 59,912 | 57,754 | 5,858 | 2,978,536 | 683,158 | 320,678 | 1,101 | 530,006 |
| Michigan | 3,599,190 | 262,855 | 94,209 | 549,635 | 103,574 | 110,405 | 16,521 | 5,584,447 | 1,202,002 | 540,016 | 2,214 | 922,305 |
| Minnesota | 1,332,039 | 121,895 | 51,657 | 281,453 | 51,668 | 64,524 | 10,332 | 2,733,721 | 723,385 | 315,331 | 1,813 | 548,556 |
| Mississippi | 875,921 | 53,722 | 33,106 | 160,996 | 33,654 | 39,125 | 4,703 | 1,507,955 | 450,615 | 137,992 | 1,196 | 337,040 |
| Missouri | 2,230,248 | 157,675 | 71,577 | 341,325 | 59,661 | 55,707 | 12,647 | 3,568,453 | 1,179,046 | 425,759 | 2,317 | 765,362 |
| Montana | 468,310 | 32,253 | 71,890 | 120,748 | 54,709 | 47,323 | 2,290 | 1,149,951 | 1,017,435 | 70,750 | 1,429 | 655,280 |
| Nebraska | 546,837 | 28,316 | 9,516 | 100,912 | 16,823 | 17,732 | 670 | 832,578 | 257,722 | 99,641 | 1,233 | 159,891 |
| Nevada | 298,220 | 21,304 | 8,682 | 71,389 | 11,379 | 10,789 | 770 | 536,920 | 203,047 | 69,281 | 866 | 137,317 |
| New Hampshire | 253,471 | 31,403 | 15,062 | 55,770 | 10,431 | 8,508 | 4,357 | 546,596 | 98,438 | 43,540 | 127 | 111,563 |
| New Jersey | 2,757,208 | 161,291 | 106,216 | 506,219 | 93,946 | 134,033 | 10,574 | 4,093,330 | 973,665 | 442,308 | 1,914 | 736,594 |
| New Mexico | 1,124,795 | 88,358 | 54,137 | 142,060 | 23,652 | 60,161 | 3,063 | 1,007,218 | 312,587 | 121,450 | 1,856 | 221,475 |
| New York | 5,486,000 | 330,535 | 218,091 | 908,735 | 174,360 | 159,989 | 27,398 | 7,016,755 | 1,440,965 | 674,394 | 2,106 | 1,251,982 |
| North Carolina | 2,017,901 | 190,226 | 76,421 | 369,005 | 71,208 | 58,440 | 14,924 | 3,623,809 | 956,294 | 353,734 | 2,193 | 711,531 |
| North Dakota | 260,510 | 12,471 | 7,131 | 41,316 | 7,710 | 7,032 | 291 | 318,645 | 109,770 | 42,115 | 768 | 64,435 |
| Ohio | 4,705,255 | 305,838 | 103,317 | 650,221 | 112,347 | 91,706 | 18,485 | 5,867,268 | 1,546,811 | 627,042 | 6,018 | 1,110,201 |
| Oklahoma | 1,043,501 | 131,690 | 152,523 | 284,130 | 93,091 | 87,690 | 4,775 | 1,757,806 | 569,149 | 176,897 | 1,373 | 413,355 |
| Oregon | 1,146,557 | 92,788 | 57,838 | 198,968 | 49,745 | 36,867 | 6,562 | 1,886,315 | 873,792 | 192,263 | 2,155 | 578,528 |
| Pennsylvania | 3,390,799 | 332,268 | 170,193 | 656,095 | 124,571 | 128,805 | 29,232 | 5,860,445 | 1,477,528 | 570,729 | 4,951 | 1,134,168 |
| Rhode Island | 297,983 | 19,886 | 6,513 | 56,233 | 9,077 | 9,398 | 1,284 | 499,415 | 104,316 | 49,250 | 150 | 85,884 |
| South Carolina | 1,350,544 | 86,039 | 37,137 | 216,852 | 40,853 | 32,610 | 3,829 | 2,783,383 | 681,306 | 238,179 | 1,120 | 455,019 |
| South Dakota | 288,618 | 16,303 | 20,223 | 55,791 | 19,018 | 17,209 | 693 | 522,694 | 349,198 | 53,037 | 367 | 222,061 |
| Tennessee | 1,648,692 | 141,478 | 60,037 | 301,568 | 54,473 | 48,850 | 12,913 | 3,180,878 | 848,711 | 336,381 | 2,761 | 658,712 |
| Texas | 10,949,271 | 552,430 | 579,425 | 1,622,612 | 353,678 | 563,229 | 3,349 | 12,339,690 | 4,798,633 | 1,808,913 | 8,657 | 2,727,929 |
| Utah | 622,059 | 39,437 | 17,872 | 128,881 | 19,625 | 20,713 | 1,387 | 961,298 | 323,377 | 124,809 | 1,875 | 209,609 |
| Vermont | 128,745 | 21,031 | 10,607 | 29,449 | 5,599 | 4,452 | 3,521 | 278,131 | 59,980 | 26,560 | 126 | 68,482 |
| Virginia | 1,643,629 | 166,156 | 64,313 | 338,089 | 57,062 | 52,722 | 12,118 | 3,097,842 | 777,212 | 330,061 | 2,319 | 598,216 |
| Washington | 1,476,488 | 110,331 | 70,487 | 306,982 | 69,590 | 59,018 | 6,886 | 2,731,880 | 1,070,991 | 292,561 | 1,814 | 728,113 |
| West Virginia | 327,217 | 44,587 | 23,232 | 100,858 | 20,680 | 15,028 | 5,716 | 843,050 | 269,844 | 89,889 | 1,106 | 213,316 |
| Wisconsin | 1,778,628 | 139,165 | 50,648 | 290,622 | 49,660 | 49,776 | 11,432 | 2,742,188 | 651,480 | 308,655 | 1,832 | 507,707 |
| Wyoming | 444,205 | 30,067 | 40,121 | 96,998 | 20,467 | 30,988 | 986 | 542,700 | 209,926 | 66,074 | 2,287 | 120,507 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 | 28,722,513 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

| | | | | | THOUSAND MOLES/YEAR | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| State | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| Alabama | 89,501 | 243,603 | 205,961 | 45,062 | 67,071 | 249,170 | 50,371 | 21,887 | 72,265 | 45,057 | 19,763 |
| Arizona | 59,304 | 174,565 | 90,847 | 18,922 | 49,833 | 190,691 | 36,076 | 21,823 | 62,885 | 23,869 | 8,026 |
| Arkansas | 52,999 | 151,319 | 127,830 | 27,638 | 43,493 | 159,273 | 31,923 | 8,380 | 28,718 | 28,515 | 13,611 |
| California | 601,833 | 1,584,475 | 853,308 | 179,397 | 375,576 | 2,156,076 | 164,316 | 98,469 | 868,194 | 321,086 | 110,828 |
| Colorado | 86,940 | 286,203 | 158,408 | 32,321 | 66,789 | 314,604 | 49,907 | 19,947 | 64,785 | 39,890 | 14,501 |
| Connecticut | 57,234 | 281,066 | 266,244 | 55,178 | 34,433 | 215,616 | 11,899 | 5,370 | 105,038 | 62,707 | 19,773 |
| Delaware | 17,754 | 104,644 | 57,451 | 8,471 | 11,509 | 94,179 | 7,169 | 2,186 | 41,253 | 21,433 | 3,504 |
| Dist. of Colum. | 11,251 | 38,583 | 15,058 | 1,978 | 16,965 | 25,185 | 2,737 | 6,187 | 4,636 | 4,675 | 4,195 |
| Florida | 229,249 | 617,922 | 312,838 | 60,615 | 177,855 | 687,059 | 68,558 | 80,150 | 291,242 | 102,741 | 39,105 |
| Georgia | 109,761 | 423,006 | 280,901 | 55,337 | 87,188 | 346,609 | 61,687 | 24,059 | 136,169 | 82,615 | 36,945 |
| Idaho | 20,278 | 70,819 | 80,110 | 17,959 | 19,006 | 76,609 | 16,064 | 4,698 | 12,527 | 8,714 | 3,994 |
| Illinois | 204,777 | 772,740 | 566,170 | 119,973 | 179,184 | 654,043 | 117,253 | 28,759 | 324,306 | 221,031 | 90,195 |
| Indiana | 133,299 | 432,474 | 426,143 | 91,273 | 90,543 | 402,404 | 84,240 | 8,726 | 227,464 | 160,694 | 29,901 |
| Iowa | 58,579 | 176,389 | 78,445 | 16,790 | 42,367 | 194,161 | 34,862 | 4,958 | 45,902 | 30,748 | 11,986 |
| Kansas | 61,218 | 174,385 | 88,969 | 14,440 | 68,225 | 217,084 | 57,995 | 7,101 | 50,294 | 29,807 | 17,188 |
| Kentucky | 101,038 | 262,336 | 278,477 | 61,032 | 73,033 | 365,889 | 52,507 | 12,834 | 91,699 | 55,738 | 34,538 |
| Louisiana | 276,075 | 341,397 | 172,142 | 26,884 | 158,281 | 560,405 | 64,275 | 29,712 | 160,493 | 86,379 | 30,115 |
| Maine | 20,448 | 96,607 | 245,155 | 54,220 | 25,794 | 77,004 | 5,730 | 3,557 | 26,388 | 21,949 | 17,005 |
| Maryland | 83,079 | 277,321 | 230,376 | 48,135 | 58,151 | 309,082 | 22,435 | 11,559 | 87,166 | 70,755 | 34,690 |
| Massachusetts | 108,988 | 371,886 | 253,931 | 53,991 | 72,912 | 961,810 | 23,316 | 14,552 | 305,718 | 121,552 | 66,391 |
| Michigan | 194,116 | 643,102 | 634,751 | 157,943 | 132,620 | 571,711 | 46,636 | 15,765 | 309,737 | 264,206 | 82,420 |
| Minnesota | 96,152 | 330,655 | 370,252 | 77,633 | 86,113 | 330,437 | 38,445 | 9,118 | 120,696 | 86,368 | 26,848 |
| Mississippi | 44,746 | 172,776 | 179,149 | 36,189 | 44,256 | 267,383 | 24,991 | 11,733 | 74,158 | 47,226 | 9,718 |
| Missouri | 159,348 | 447,560 | 516,632 | 97,448 | 104,642 | 386,118 | 56,082 | 20,155 | 188,836 | 176,818 | 49,833 |
| Montana | 21,505 | 68,376 | 76,475 | 17,169 | 21,816 | 152,828 | 29,867 | 3,776 | 12,484 | 7,597 | 2,136 |
| Nebraska | 31,904 | 266,253 | 105,508 | 8,906 | 29,109 | 125,688 | 25,764 | 5,019 | 114,850 | 86,111 | 5,849 |
| Nevada | 22,968 | 74,367 | 43,300 | 7,910 | 23,959 | 76,174 | 18,123 | 12,298 | 20,730 | 8,132 | 1,709 |
| New Hampshire | 14,444 | 77,267 | 136,578 | 32,243 | 10,227 | 65,899 | 2,705 | 2,241 | 29,880 | 29,900 | 7,013 |
| New Jersey | 183,820 | 495,186 | 428,671 | 88,890 | 136,296 | 781,319 | 43,853 | 13,557 | 290,770 | 114,213 | 62,114 |
| New Mexico | 45,818 | 149,511 | 143,272 | 24,461 | 69,805 | 145,756 | 38,933 | 9,236 | 27,194 | 11,532 | 2,586 |
| New York | 249,269 | 841,816 | 924,138 | 212,338 | 140,839 | 1,056,132 | 44,518 | 30,370 | 297,159 | 219,671 | 102,881 |
| North Carolina | 114,625 | 413,488 | 505,266 | 111,876 | 90,602 | 376,800 | 46,766 | 25,189 | 179,863 | 150,545 | 40,532 |
| North Dakota | 11,712 | 35,477 | 17,738 | 3,598 | 13,433 | 80,657 | 16,040 | 4,299 | 7,096 | 3,995 | 1,224 |
| Ohio | 229,760 | 736,290 | 681,147 | 153,976 | 157,209 | 753,465 | 127,213 | 18,187 | 415,042 | 224,326 | 80,248 |
| Oklahoma | 65,700 | 205,473 | 195,591 | 38,620 | 64,190 | 312,669 | 29,221 | 12,408 | 59,881 | 31,171 | 10,160 |
| Oregon | 55,358 | 196,172 | 217,570 | 49,540 | 47,373 | 194,580 | 45,412 | 7,551 | 53,671 | 35,018 | 25,949 |
| Pennsylvania | 225,515 | 775,370 | 976,773 | 215,513 | 160,949 | 806,177 | 105,124 | 23,703 | 308,948 | 205,283 | 104,205 |
| Rhode Island | 18,262 | 64,222 | 52,729 | 12,022 | 13,110 | 57,583 | 3,270 | 1,962 | 26,925 | 16,629 | 7,575 |
| South Carolina | 84,966 | 463,241 | 237,428 | 34,329 | 55,479 | 228,471 | 26,512 | 11,849 | 269,015 | 283,609 | 55,381 |
| South Dakota | 13,649 | 43,718 | 30,857 | 6,305 | 13,670 | 49,333 | 7,671 | 3,084 | 7,640 | 4,614 | 1,484 |
| Tennessee | 121,130 | 364,231 | 439,913 | 97,337 | 84,342 | 347,580 | 61,082 | 11,866 | 222,452 | 113,755 | 44,837 |
| Texas | 713,885 | 1,375,843 | 594,260 | 68,527 | 462,742 | 2,302,927 | 206,478 | 98,762 | 777,994 | 409,054 | 96,738 |
| Utah | 39,639 | 121,038 | 67,823 | 14,360 | 36,190 | 147,018 | 39,190 | 5,677 | 27,658 | 14,695 | 3,831 |
| Vermont | 8,529 | 40,183 | 101,578 | 23,967 | 5,913 | 33,191 | 2,662 | 1,263 | 13,751 | 9,035 | 4,008 |
| Virginia | 113,069 | 375,119 | 418,972 | 97,394 | 86,086 | 397,547 | 50,108 | 12,626 | 165,600 | 96,536 | 47,743 |
| Washington | 89,491 | 289,661 | 257,552 | 56,192 | 73,547 | 358,434 | 38,367 | 16,703 | 71,429 | 45,846 | 23,316 |
| West Virginia | 26,632 | 102,562 | 172,803 | 40,376 | 23,292 | 114,005 | 23,208 | 3,408 | 15,629 | 12,410 | 4,458 |
| Wisconsin | 91,027 | 380,425 | 404,415 | 87,009 | 77,741 | 302,076 | 38,612 | 7,921 | 131,387 | 124,095 | 82,950 |
| Wyoming | 22,126 | 61,308 | 42,571 | 8,635 | 27,780 | 120,680 | 47,775 | 1,653 | 6,362 | 4,484 | 636 |
| Contig. U.S. | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS, AREA & POINT SOURCES

| | | | | | | | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| REGION 1 | 685,936 | 41,953 | 552,696 | 43,882 | 1,415 | 4,703,212 | 3,847 | 215 | 2,470 | 657,426 | 312 | 183 | 169 | 80 | 1,185,538 | 1,274,058 |
| REGION 2 | 1,180,163 | 63,920 | 1,075,799 | 78,555 | 1,979 | 7,052,898 | 11,835 | 2,208 | 14,042 | 1,204,930 | 1,404 | 1,168 | 559 | 315 | 1,857,619 | 2,016,830 |
| REGION 3 | 3,858,772 | 126,506 | 2,096,543 | 138,182 | 3,748 | 9,526,520 | 86,787 | 13,285 | 40,660 | 2,573,135 | 10,367 | 4,162 | 1,713 | 1,991 | 2,210,510 | 2,360,328 |
| REGION 4 | 6,473,217 | 206,358 | 3,725,913 | 252,170 | 5,199 | 16,253,808 | 130,211 | 48,740 | 135,784 | 5,088,856 | 13,766 | 4,664 | 2,049 | 1,306 | 4,075,244 | 4,316,670 |
| REGION 5 | 7,867,419 | 202,874 | 4,187,088 | 280,130 | 8,105 | 18,753,223 | 165,692 | 27,076 | 205,228 | 5,286,234 | 38,742 | 10,528 | 4,869 | 7,451 | 4,414,825 | 4,805,098 |
| REGION 6 | 2,179,556 | 113,688 | 4,640,733 | 316,592 | 3,573 | 15,437,049 | 35,964 | 10,851 | 133,234 | 9,727,381 | 13,762 | 3,265 | 696 | 751 | 3,537,629 | 3,847,014 |
| REGION 7 | 1,973,687 | 45,243 | 1,440,226 | 101,678 | 1,725 | 4,993,826 | 44,940 | 5,768 | 176,547 | 7,049,162 | 22,074 | 4,103 | 1,124 | 429 | 1,285,770 | 1,409,712 |
| REGION 8 | 793,365 | 54,576 | 993,160 | 72,028 | 1,485 | 6,096,071 | 28,165 | 3,765 | 55,581 | 5,204,444 | 8,339 | 2,758 | 1,362 | 2,220 | 1,005,242 | 1,073,957 |
| REGION 9 | 1,512,034 | 73,455 | 1,604,421 | 139,155 | 3,116 | 11,356,048 | 12,963 | 1,676 | 44,639 | 3,297,549 | 3,359 | 800 | 181 | 304 | 2,564,528 | 2,785,895 |
| REGION 10 | 429,988 | 47,035 | 560,507 | 52,780 | 1,387 | 5,136,282 | 6,120 | 1,850 | 30,479 | 2,528,253 | 1,684 | 396 | 253 | 627 | 1,027,643 | 1,087,898 |
| Contig. U.S. | 26,954,136 | 975,608 | 20,877,086 | 1,475,151 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 113,808 | 32,025 | 12,975 | 15,474 | 23,164,547 | 24,977,459 |

| | | | | | | | METRIC TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| REGION 1 | 622,280 | 38,059 | 501,400 | 39,809 | 1,284 | 4,266,684 | 3,490 | 195 | 2,241 | 596,408 | 283 | 166 | 153 | 72 | 1,075,505 | 1,155,810 |
| REGION 2 | 1,070,643 | 57,988 | 975,955 | 71,264 | 1,795 | 6,398,285 | 10,737 | 2,003 | 12,738 | 1,093,100 | 1,274 | 1,059 | 507 | 286 | 1,685,207 | 1,829,642 |
| REGION 3 | 3,500,682 | 114,766 | 1,901,970 | 125,357 | 3,400 | 8,642,332 | 78,733 | 12,052 | 36,886 | 2,334,316 | 9,405 | 3,775 | 1,554 | 1,806 | 2,005,346 | 2,141,260 |
| REGION 4 | 5,872,509 | 187,208 | 3,380,124 | 228,766 | 4,716 | 14,745,227 | 118,128 | 44,217 | 123,182 | 4,616,546 | 12,489 | 4,231 | 1,859 | 1,185 | 3,697,012 | 3,916,031 |
| REGION 5 | 7,137,332 | 184,047 | 3,798,500 | 254,131 | 7,353 | 17,012,667 | 150,316 | 24,563 | 186,181 | 4,795,609 | 35,147 | 9,551 | 4,417 | 6,760 | 4,005,073 | 4,359,126 |
| REGION 6 | 1,977,289 | 103,138 | 4,210,037 | 287,210 | 3,241 | 14,004,319 | 32,627 | 9,844 | 120,869 | 8,824,543 | 12,485 | 2,962 | 632 | 682 | 3,209,303 | 3,489,976 |
| REGION 7 | 1,790,531 | 41,044 | 1,306,563 | 92,241 | 1,565 | 4,530,326 | 40,770 | 5,233 | 160,161 | 6,394,901 | 20,026 | 3,722 | 1,020 | 389 | 1,166,436 | 1,278,875 |
| REGION 8 | 719,740 | 49,511 | 900,988 | 65,342 | 1,347 | 5,530,270 | 25,551 | 3,416 | 50,423 | 4,721,397 | 7,565 | 2,502 | 1,236 | 2,014 | 911,942 | 974,279 |
| REGION 9 | 1,371,718 | 66,638 | 1,455,514 | 126,240 | 2,827 | 10,302,041 | 11,760 | 1,520 | 40,496 | 2,991,490 | 3,047 | 726 | 164 | 275 | 2,326,506 | 2,527,328 |
| REGION 10 | 390,084 | 42,670 | 508,486 | 47,881 | 1,258 | 4,659,562 | 5,552 | 1,678 | 27,651 | 2,293,595 | 1,527 | 359 | 229 | 569 | 932,263 | 986,926 |
| Contig. U.S. | 24,452,809 | 885,069 | 18,939,536 | 1,338,240 | 28,787 | 90,091,713 | 477,664 | 104,722 | 760,828 | 38,661,905 | 103,247 | 29,053 | 11,771 | 14,038 | 21,014,593 | 22,659,252 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pent | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes |
| REGION 1 | 4,488,261 | 327,245 | 134,969 | 854,466 | 128,371 | 123,580 | 30,523 | 6,570,576 | 1,428,731 | 674,720 | 2,332 | 1,258,505 |
| REGION 2 | 8,243,208 | 491,826 | 324,307 | 1,414,954 | 268,306 | 294,022 | 37,972 | 11,110,085 | 2,414,630 | 1,116,702 | 4,020 | 1,988,577 |
| REGION 3 | 7,164,608 | 797,476 | 453,331 | 1,528,977 | 341,262 | 261,384 | 53,953 | 12,535,958 | 3,187,076 | 1,346,102 | 9,897 | 2,445,803 |
| REGION 4 | 11,923,392 | 1,102,242 | 555,938 | 2,615,654 | 565,032 | 428,845 | 60,880 | 24,080,968 | 7,256,567 | 2,580,343 | 18,138 | 5,180,087 |
| REGION 5 | 19,943,921 | 1,348,978 | 501,301 | 2,778,259 | 506,159 | 485,791 | 81,174 | 26,050,896 | 6,487,520 | 2,766,134 | 21,432 | 4,770,952 |
| REGION 6 | 15,760,210 | 1,070,750 | 1,008,229 | 2,561,530 | 591,888 | 858,782 | 17,009 | 19,898,278 | 7,984,392 | 3,111,527 | 15,376 | 4,616,501 |
| REGION 7 | 6,391,697 | 395,581 | 202,425 | 806,464 | 149,087 | 154,481 | 15,734 | 7,408,045 | 2,344,611 | 890,088 | 7,961 | 1,492,723 |
| REGION 8 | 3,569,567 | 224,119 | 193,733 | 715,431 | 162,461 | 153,049 | 8,838 | 5,623,277 | 2,804,459 | 620,664 | 9,109 | 1,789,389 |
| REGION 9 | 11,455,675 | 708,892 | 517,552 | 2,085,014 | 421,084 | 400,152 | 18,456 | 15,441,577 | 4,787,257 | 1,792,586 | 10,240 | 3,243,512 |
| REGION 10 | 3,053,606 | 231,153 | 187,933 | 611,297 | 167,503 | 134,208 | 15,835 | 5,727,904 | 2,916,488 | 558,798 | 4,737 | 1,936,466 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 | 28,722,513 |

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EPA REGION | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org. Acid |
| REGION 1 | 227,905 | 931,231 | 1,056,215 | 231,621 | 162,388 | 1,411,102 | 49,580 | 28,945 | 507,699 | 261,771 | 121,765 |
| REGION 2 | 433,089 | 1,337,002 | 1,352,810 | 301,227 | 277,135 | 1,837,451 | 88,371 | 43,927 | 587,929 | 333,884 | 164,995 |
| REGION 3 | 477,301 | 1,673,599 | 1,871,433 | 411,867 | 356,953 | 1,746,176 | 210,780 | 59,670 | 623,232 | 411,091 | 198,794 |
| REGION 4 | 895,017 | 2,960,603 | 2,439,933 | 501,777 | 679,826 | 2,868,961 | 392,474 | 199,568 | 1,336,863 | 881,286 | 280,819 |
| REGION 5 | 949,131 | 3,295,684 | 3,082,877 | 687,808 | 723,409 | 3,014,136 | 452,399 | 88,477 | 1,528,633 | 1,080,721 | 392,563 |
| REGION 6 | 1,154,477 | 2,223,543 | 1,233,095 | 186,129 | 798,511 | 3,481,031 | 370,831 | 158,497 | 1,054,279 | 566,651 | 153,211 |
| REGION 7 | 311,050 | 1,064,588 | 789,555 | 137,583 | 244,343 | 923,051 | 174,703 | 37,233 | 399,882 | 323,485 | 84,856 |
| REGION 8 | 195,570 | 616,120 | 393,871 | 82,388 | 179,678 | 865,120 | 190,449 | 38,435 | 126,026 | 75,275 | 23,812 |
| REGION 9 | 684,105 | 1,833,406 | 987,454 | 206,728 | 449,368 | 2,422,941 | 218,516 | 132,590 | 951,808 | 353,087 | 120,563 |
| REGION 10 | 165,126 | 556,652 | 555,232 | 123,692 | 139,926 | 629,623 | 99,842 | 28,951 | 137,627 | 89,578 | 53,259 |
| Contig. U.S. | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 10101 | 3,524 | 151 | 67,580 | 7,509 | 0 | 1,100,692 | 0 | 0 | 0 | 6,089 | 0 | 0 | 0 | 0 | 76,543 | 82,528 |
| 10102 | 1,926 | 20 | 46,451 | 5,161 | 0 | 1,035,780 | 0 | 0 | 0 | 4,904 | 0 | 0 | 0 | 0 | 65,662 | 70,796 |
| 10103 | 2,130 | 49 | 46,634 | 5,182 | 0 | 782,189 | 0 | 0 | 0 | 3,680 | 0 | 0 | 0 | 0 | 63,894 | 68,890 |
| 10104 | 14,150 | 969 | 284,366 | 31,596 | 0 | 4,087,204 | 0 | 0 | 0 | 33,616 | 0 | 0 | 0 | 0 | 410,708 | 442,819 |
| 10105 | 49 | 0 | 294 | 33 | 0 | 51,875 | 0 | 0 | 0 | 272 | 0 | 0 | 0 | 0 | 14,012 | 15,108 |
| 10106 | 30 | 0 | 312 | 35 | 0 | 33,909 | 0 | 0 | 0 | 963 | 0 | 0 | 0 | 0 | 21,025 | 22,669 |
| 10201 | 28 | 0 | 45 | 1 | 0 | 460 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 53 | 54 |
| 10202 | 47 | 0 | 150 | 5 | 0 | 1,550 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 | 172 | 174 |
| 10203 | 562 | 0 | 5,806 | 180 | 0 | 11,978 | 0 | 0 | 0 | 330 | 0 | 0 | 0 | 0 | 7,266 | 7,378 |
| 10204 | 1,676 | 0 | 35,515 | 1,098 | 0 | 1,536 | 0 | 0 | 0 | 762 | 0 | 0 | 0 | 0 | 350 | 356 |
| 10206 | 47 | 0 | 285 | 9 | 0 | 68,717 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 6,187 | 6,283 |
| 10207 | 29 | 0 | 37 | 1 | 0 | 12,674 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 754 | 766 |
| 10208 | 57 | 0 | 82 | 3 | 0 | 61,680 | 0 | 0 | 0 | 113 | 0 | 0 | 0 | 0 | 9,996 | 10,150 |
| 10210 | 88 | 0 | 674 | 21 | 0 | 373 | 0 | 0 | 0 | 93 | 0 | 0 | 0 | 0 | 17 | 17 |
| 10211 | 42 | 0 | 51 | 2 | 0 | 16,498 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 651 | 661 |
| 10213 | 48 | 0 | 332 | 10 | 0 | 770 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 0 | 341 | 346 |
| 10214 | 4,664 | 201 | 106,195 | 11,799 | 0 | 42,910 | 0 | 0 | 0 | 8,030 | 0 | 0 | 0 | 0 | 35,115 | 35,724 |
| 10215 | 202 | 0 | 195 | 10 | 0 | 102,292 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32,236 | 34,796 |
| 10217 | 3,780 | 0 | 4,311 | 88 | 0 | 4,045 | 0 | 0 | 0 | 1,452 | 0 | 0 | 0 | 0 | 5,659 | 5,659 |
| 10218 | 2,164 | 0 | 16,108 | 329 | 0 | 3,295 | 0 | 0 | 0 | 862 | 0 | 0 | 0 | 0 | 12,407 | 12,407 |
| 10220 | 5,576 | 0 | 1,658 | 34 | 0 | 0 | 0 | 0 | 0 | 127 | 0 | 0 | 0 | 0 | 117 | 131 |
| 10221 | 60,657 | 0 | 11,405 | 233 | 0 | 718 | 0 | 0 | 0 | 4,169 | 0 | 0 | 0 | 0 | 218 | 245 |
| 10301 | 1,357 | 0 | 26,112 | 2,901 | 0 | 967,453 | 0 | 0 | 0 | 1,803 | 0 | 0 | 0 | 0 | 47,632 | 51,415 |
| 10501 | 0 | 0 | 143,302 | 25,289 | 0 | 6,743,663 | 0 | 0 | 12,646 | 6,322,187 | 0 | 0 | 0 | 0 | 1,011,551 | 1,011,551 |
| 10601 | 0 | 0 | 17,015 | 3,003 | 0 | 1,145,919 | 0 | 0 | 0 | 225,073 | 0 | 0 | 0 | 0 | 21,643 | 21,643 |
| 10701 | 0 | 0 | 0 | 0 | 0 | 11,111 | 0 | 0 | 0 | 5,556 | 0 | 0 | 0 | 0 | 5,556 | 5,556 |
| 10801 | 0 | 145 | 0 | 0 | 0 | 0 | 0 | 0 | 147,983 | 7,852 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,243 | 18,243 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11,245 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,820 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 526 | 0 | 0 | 0 | 0 | 165,936 | 169,495 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,931 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100,888 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60,835 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,025 | 0 | 0 | 0 | 0 | 250 | 250 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110 | 0 | 0 | 0 | 0 | 9 | 9 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,483 | 0 | 0 | 0 | 0 | 119 | 119 |
| 11702 | 72 | 3 | 114 | 2 | 0 | 6 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 2 | 2 |
| 11703 | 19 | 0 | 28 | 3 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11704 | 3,391 | 201 | 549 | 11 | 0 | 44 | 0 | 0 | 0 | 250 | 0 | 0 | 0 | 0 | 14 | 16 |
| 11705 | 1,460 | 20 | 9,065 | 1,007 | 0 | 3,143 | 0 | 0 | 0 | 904 | 0 | 0 | 0 | 0 | 831 | 970 |
| 11706 | 272 | 0 | 3,852 | 203 | 0 | 139 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 6 | 14 |
| 11711 | 4,266 | 82 | 257 | 8 | 0 | 7,457 | 0 | 0 | 169 | 1,477 | 0 | 0 | 0 | 0 | 1,462 | 1,493 |
| 11712 | 59,117 | 3,855 | 24,089 | 492 | 0 | 6,719 | 0 | 0 | 1,310 | 3,328 | 0 | 0 | 0 | 0 | 6,374 | 6,374 |
| 11713 | 2,793 | 301 | 2,756 | 56 | 0 | 770 | 0 | 0 | 144 | 378 | 0 | 0 | 0 | 0 | 715 | 715 |
| 11714 | 2 | 0 | 1,042 | 55 | 0 | 232 | 0 | 0 | 0 | 29 | 0 | 0 | 0 | 0 | 44 | 99 |
| 11715 | 115 | 1 | 18,273 | 962 | 0 | 6,731 | 0 | 0 | 0 | 576 | 0 | 0 | 0 | 0 | 733 | 1,660 |
| 11716 | 7,959 | 859 | 1,269 | 26 | 0 | 124 | 0 | 0 | 22 | 687 | 0 | 0 | 0 | 0 | 60 | 67 |
| 11721 | 1,098 | 19 | 189 | 6 | 0 | 668 | 0 | 0 | 0 | 904 | 0 | 0 | 0 | 0 | 631 | 645 |
| 11722 | 21,561 | 2,888 | 6,[illegible]21 | 135 | 0 | 1,742 | 0 | 0 | 0 | 703 | 0 | 0 | 0 | 0 | 357 | 357 |
| 11723 | 676 | 90 | [illegible]42 | 15 | 0 | 199 | 0 | 0 | 0 | 82 | 0 | 0 | 0 | 0 | 39 | 39 |
| 11724 | 2 | 0 | [illegible]85 | 41 | 0 | 147 | 0 | 0 | 0 | 139 | 0 | 0 | 0 | 0 | 25 | 58 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

|  | TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 11725 | 115 | 8 | 17,858 | 940 | 0 | 6,580 | 0 | 0 | 0 | 562 | 0 | 0 | 0 | 0 | 716 | 1,623 |
| 11726 | 69,506 | 6,249 | 12,100 | 247 | 0 | 1,177 | 0 | 0 | 0 | 6,546 | 0 | 0 | 0 | 0 | 574 | 645 |
| 11731 | 72,651 | 1,166 | 10,729 | 332 | 0 | 5,556 | 0 | 0 | 0 | 28,024 | 0 | 0 | 0 | 0 | 304 | 311 |
| 11732 | 6,569 | 704 | 2,914 | 59 | 0 | 762 | 0 | 0 | 0 | 312 | 0 | 0 | 0 | 0 | 158 | 158 |
| 11733 | 172 | 17 | 216 | 4 | 0 | 55 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 8 | 8 |
| 11734 | 2 | 0 | 858 | 45 | 0 | 228 | 0 | 0 | 0 | 81 | 0 | 0 | 0 | 0 | 16 | 36 |
| 11735 | 178 | 13 | 39,772 | 2,093 | 0 | 10,467 | 0 | 0 | 0 | 897 | 0 | 0 | 0 | 0 | 826 | 1,871 |
| 11736 | 320,833 | 26,967 | 54,760 | 1,118 | 0 | 5,334 | 0 | 0 | 0 | 29,673 | 0 | 0 | 0 | 0 | 2,597 | 2,917 |
| 11740 | 2,790 | 0 | 5,562 | 172 | 0 | 428,957 | 0 | 0 | 0 | 96,093 | 0 | 0 | 0 | 0 | 3,550 | 3,626 |
| 11801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,934 | 4,382 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43,307 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,019 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 970 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23,289 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 466 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,317 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 123 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 300 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 240 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 160 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,370 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,318 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,778 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 248 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,043 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,737 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,802 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,308 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17,199 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,425 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,946 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,027 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,836 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,541 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,009 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 919 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,896 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,147 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12701 | 0 | 0 | 72,524 | 3,817 | 0 | 9,673 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,416 | 32,657 |
| 12702 | 0 | 0 | 2,086 | 110 | 0 | 906 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 142 |
| 12703 | 0 | 0 | 7,302 | 384 | 0 | 974 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,451 | 3,287 |
| 12704 | 0 | 0 | 542 | 29 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 4 | 9 |
| 12705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,880 | 4,258 |
| 12801 | 302 | 0 | 2,575 | 454 | 0 | 393,658 | 0 | 0 | 0 | 33,311 | 0 | 0 | 0 | 0 | 6,601 | 33,311 |
| 12802 | 104 | 0 | 192 | 34 | 0 | 0 | 0 | 0 | 28 | 125 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12803 | 526 | 0 | 396 | 70 | 0 | 759 | 0 | 0 | 83 | 929 | 0 | 0 | 0 | 0 | 42 | 212 |
| 12901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,130 | 55,130 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 12902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,538 | 26,538 |
| 12903 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,317 | 3,317 |
| 12904 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,068 | 35,068 |
| 12905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,055 | 5,055 |
| 12906 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,013 | 30,013 |
| 12907 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,843 | 2,843 |
| 13001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81,760 | 81,760 |
| 13002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74,060 | 74,060 |
| 13101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,456 | 2,019,013 |
| 13201 | 0 | 0 | 0 | 0 | 0 | 1,045 | 0 | 0 | 0 | 2,749 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 0 | 4,682 | 0 | 0 | 0 | 2,945 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,276 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,120 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,294,970 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,945 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,270,672 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,866,796 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 311,669 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,284,702 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 486 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,935 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 0 | 2,132 | 0 | 0 | 0 | 5,329 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,047 | 5,720 |
| 14102 | 36,201 | 181 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,296 | 25,271 |
| 14201 | 657 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,609 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,382 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143,020 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61,615 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,381 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,762 | 0 | 0 | 0 | 0 | 267 | 758 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,441 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14601 | 6,144 | 565 | 60,077 | 6,675 | 0 | 23,746 | 0 | 0 | 0 | 9,133 | 0 | 0 | 0 | 0 | 14,424 | 14,674 |
| 14602 | 3,990 | 365 | 60,943 | 6,771 | 0 | 11,862 | 0 | 0 | 0 | 2,264 | 0 | 0 | 0 | 0 | 4,620 | 4,700 |
| 14603 | 24,640 | 1,322 | 113,657 | 12,629 | 0 | 60,210 | 0 | 0 | 0 | 11,439 | 0 | 0 | 0 | 0 | 22,901 | 23,298 |
| 14604 | 12,359 | 1,136 | 168,960 | 18,773 | 0 | 40,756 | 0 | 0 | 0 | 13,364 | 0 | 0 | 0 | 0 | 17,889 | 18,200 |
| 14701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,166 | 21,539 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63,786 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83,641 | 84,390 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157,366 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 822,512 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 763,375 | 48,547 | 1,518,567 | 152,309 | NR | 17,326,935 | NR | NR | 162,384 | 30,641,093 | NR | NR | NR | NR | 2,618,250 | 4,729,547 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
| 10101 | 3,197 | 137 | 61,308 | 6,812 | 0 | 998,531 | 0 | 0 | 0 | 5,524 | 0 | 0 | 0 | 0 | 69,439 | 74,868 |
| 10102 | 1,747 | 18 | 42,139 | 4,682 | 0 | 939,644 | 0 | 0 | 0 | 4,449 | 0 | 0 | 0 | 0 | 59,568 | 64,225 |
| 10103 | 1,932 | 44 | 42,306 | 4,701 | 0 | 709,590 | 0 | 0 | 0 | 3,338 | 0 | 0 | 0 | 0 | 57,964 | 62,496 |
| 10104 | 12,837 | 879 | 257,972 | 28,664 | 0 | 3,707,849 | 0 | 0 | 0 | 30,496 | 0 | 0 | 0 | 0 | 372,588 | 401,718 |
| 10105 | 44 | 0 | 267 | 30 | 0 | 47,060 | 0 | 0 | 0 | 247 | 0 | 0 | 0 | 0 | 12,712 | 13,706 |
| 10106 | 27 | 0 | 283 | 31 | 0 | 30,762 | 0 | 0 | 0 | 874 | 0 | 0 | 0 | 0 | 19,074 | 20,565 |
| 10201 | 25 | 0 | 40 | 1 | 0 | 417 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 48 | 49 |
| 10202 | 43 | 0 | 136 | 4 | 0 | 1,406 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 156 | 158 |
| 10203 | 510 | 0 | 5,267 | 163 | 0 | 10,866 | 0 | 0 | 0 | 299 | 0 | 0 | 0 | 0 | 6,592 | 6,693 |
| 10204 | 1,520 | 0 | 32,218 | 996 | 0 | 1,393 | 0 | 0 | 0 | 691 | 0 | 0 | 0 | 0 | 318 | 323 |
| 10206 | 43 | 0 | 259 | 8 | 0 | 62,339 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 5,613 | 5,699 |
| 10207 | 26 | 0 | 33 | 1 | 0 | 11,498 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 684 | 695 |
| 10208 | 52 | 0 | 75 | 2 | 0 | 55,955 | 0 | 0 | 0 | 103 | 0 | 0 | 0 | 0 | 9,069 | 9,208 |
| 10210 | 80 | 0 | 612 | 19 | 0 | 338 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 15 | 16 |
| 10211 | 38 | 0 | 47 | 1 | 0 | 14,967 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 591 | 600 |
| 10213 | 44 | 0 | 301 | 9 | 0 | 699 | 0 | 0 | 0 | 113 | 0 | 0 | 0 | 0 | 309 | 314 |
| 10214 | 4,231 | 182 | 96,338 | 10,704 | 0 | 38,927 | 0 | 0 | 0 | 7,285 | 0 | 0 | 0 | 0 | 31,856 | 32,408 |
| 10215 | 183 | 0 | 177 | 9 | 0 | 92,798 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,244 | 31,566 |
| 10217 | 3,429 | 0 | 3,911 | 80 | 0 | 3,670 | 0 | 0 | 0 | 1,317 | 0 | 0 | 0 | 0 | 5,133 | 5,133 |
| 10218 | 1,963 | 0 | 14,613 | 298 | 0 | 2,989 | 0 | 0 | 0 | 782 | 0 | 0 | 0 | 0 | 11,255 | 11,255 |
| 10220 | 5,058 | 0 | 1,504 | 31 | 0 | 0 | 0 | 0 | 0 | 115 | 0 | 0 | 0 | 0 | 106 | 119 |
| 10221 | 55,027 | 0 | 10,347 | 211 | 0 | 651 | 0 | 0 | 0 | 3,782 | 0 | 0 | 0 | 0 | 198 | 222 |
| 10301 | 1,231 | 0 | 23,688 | 2,632 | 0 | 877,659 | 0 | 0 | 0 | 1,636 | 0 | 0 | 0 | 0 | 43,211 | 46,643 |
| 10501 | 0 | 0 | 130,001 | 22,941 | 0 | 6,117,748 | 0 | 0 | 11,472 | 5,735,392 | 0 | 0 | 0 | 0 | 917,664 | 917,664 |
| 10601 | 0 | 0 | 15,436 | 2,724 | 0 | 1,039,560 | 0 | 0 | 0 | 204,183 | 0 | 0 | 0 | 0 | 19,634 | 19,634 |
| 10701 | 0 | 0 | 0 | 0 | 0 | 10,080 | 0 | 0 | 0 | 5,040 | 0 | 0 | 0 | 0 | 5,040 | 5,040 |
| 10801 | 0 | 132 | 0 | 0 | 0 | 0 | 0 | 0 | 134,248 | 7,123 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,550 | 16,550 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,201 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,651 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 477 | 0 | 0 | 0 | 0 | 150,534 | 153,763 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,288 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91,524 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,189 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,373 | 0 | 0 | 0 | 0 | 227 | 227 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 0 | 8 | 8 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,345 | 0 | 0 | 0 | 0 | 108 | 108 |
| 11702 | 65 | 3 | 103 | 2 | 0 | 5 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 2 | 2 |
| 11703 | 17 | 0 | 25 | 3 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11704 | 3,076 | 182 | 498 | 10 | 0 | 40 | 0 | 0 | 0 | 227 | 0 | 0 | 0 | 0 | 13 | 14 |
| 11705 | 1,324 | 18 | 8,223 | 914 | 0 | 2,851 | 0 | 0 | 0 | 820 | 0 | 0 | 0 | 0 | 754 | 880 |
| 11706 | 247 | 0 | 3,495 | 184 | 0 | 126 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 6 | 13 |
| 11711 | 3,870 | 74 | 233 | 7 | 0 | 6,765 | 0 | 0 | 153 | 1,340 | 0 | 0 | 0 | 0 | 1,326 | 1,354 |
| 11712 | 53,630 | 3,497 | 21,854 | 446 | 0 | 6,095 | 0 | 0 | 1,188 | 3,019 | 0 | 0 | 0 | 0 | 5,782 | 5,782 |
| 11713 | 2,534 | 273 | 2,500 | 51 | 0 | 699 | 0 | 0 | 131 | 343 | 0 | 0 | 0 | 0 | 649 | 649 |
| 11714 | 2 | 0 | 945 | 50 | 0 | 210 | 0 | 0 | 0 | 26 | 0 | 0 | 0 | 0 | 40 | 90 |
| 11715 | 104 | 1 | 16,577 | 872 | 0 | 6,106 | 0 | 0 | 0 | 523 | 0 | 0 | 0 | 0 | 665 | 1,506 |
| 11716 | 7,220 | 779 | 1,151 | 23 | 0 | 112 | 0 | 0 | 20 | 623 | 0 | 0 | 0 | 0 | 54 | 61 |
| 11721 | 996 | 17 | 172 | 5 | 0 | 606 | 0 | 0 | 0 | 820 | 0 | 0 | 0 | 0 | 573 | 585 |
| 11722 | 19,560 | 2,620 | 6,006 | 123 | 0 | 1,580 | 0 | 0 | 0 | 638 | 0 | 0 | 0 | 0 | 324 | 324 |
| 11723 | 613 | 82 | 673 | 14 | 0 | 181 | 0 | 0 | 0 | 74 | 0 | 0 | 0 | 0 | 35 | 35 |
| 11724 | 2 | 0 | 712 | 37 | 0 | 133 | 0 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 23 | 52 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 11725 | 104 | 7 | 16,201 | 853 | 0 | 5,969 | 0 | 0 | 0 | 510 | 0 | 0 | 0 | 0 | 650 | 1,472 |
| 11726 | 63,055 | 5,669 | 10,977 | 224 | 0 | 1,068 | 0 | 0 | 0 | 5,938 | 0 | 0 | 0 | 0 | 521 | 585 |
| 11731 | 65,908 | 1,058 | 9,733 | 301 | 0 | 5,040 | 0 | 0 | 0 | 25,423 | 0 | 0 | 0 | 0 | 276 | 282 |
| 11732 | 5,959 | 639 | 2,643 | 54 | 0 | 691 | 0 | 0 | 0 | 283 | 0 | 0 | 0 | 0 | 143 | 143 |
| 11733 | 156 | 15 | 196 | 4 | 0 | 50 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 7 | 7 |
| 11734 | 2 | 0 | 778 | 41 | 0 | 207 | 0 | 0 | 0 | 73 | 0 | 0 | 0 | 0 | 14 | 33 |
| 11735 | 161 | 12 | 36,080 | 1,899 | 0 | 9,496 | 0 | 0 | 0 | 814 | 0 | 0 | 0 | 0 | 749 | 1,697 |
| 11736 | 291,055 | 24,464 | 49,678 | 1,014 | 0 | 4,839 | 0 | 0 | 0 | 26,919 | 0 | 0 | 0 | 0 | 2,356 | 2,646 |
| 11740 | 2,531 | 0 | 5,046 | 156 | 0 | 389,143 | 0 | 0 | 0 | 87,174 | 0 | 0 | 0 | 0 | 3,220 | 3,289 |
| 11801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,755 | 3,975 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39,287 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,460 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 880 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21,127 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 423 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,452 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 272 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 218 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 135 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 145 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,010 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,870 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 225 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,296 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,576 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,449 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,094 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,603 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,107 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,930 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,746 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,666 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,398 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 915 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 834 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,627 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,041 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 206 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12701 | 0 | 0 | 65,793 | 3,463 | 0 | 8,775 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,078 | 29,626 |
| 12702 | 0 | 0 | 1,893 | 100 | 0 | 822 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 129 |
| 12703 | 0 | 0 | 6,624 | 349 | 0 | 884 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,316 | 2,982 |
| 12704 | 0 | 0 | 491 | 26 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 0 | 0 | 3 | 8 |
| 12705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,705 | 3,863 |
| 12801 | 274 | 0 | 2,336 | 412 | 0 | 357,121 | 0 | 0 | 0 | 30,219 | 0 | 0 | 0 | 0 | 5,988 | 30,219 |
| 12802 | 94 | 0 | 174 | 31 | 0 | 0 | 0 | 0 | 25 | 113 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12803 | 477 | 0 | 359 | 63 | 0 | 689 | 0 | 0 | 75 | 843 | 0 | 0 | 0 | 0 | 38 | 192 |
| 12901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,013 | 50,013 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| SCC | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCl | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| 12902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24,075 | 24,075 |
| 12903 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,009 | 3,009 |
| 12904 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,813 | 31,813 |
| 12905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,586 | 4,586 |
| 12906 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,228 | 27,228 |
| 12907 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,579 | 2,579 |
| 13001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74,171 | 74,171 |
| 13002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67,186 | 67,186 |
| 13101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,537 | 1,831,618 |
| 13201 | 0 | 0 | 0 | 0 | 0 | 948 | 0 | 0 | 0 | 2,494 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 0 | 4,247 | 0 | 0 | 0 | 2,672 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,065 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,016 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,174,777 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65,267 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,967,104 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,507,898 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 282,741 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,051,679 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 441 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,755 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 0 | 1,934 | 0 | 0 | 0 | 4,834 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,578 | 5,189 |
| 14102 | 32,841 | 164 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,227 | 22,925 |
| 14201 | 596 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,460 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,697 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129,746 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55,896 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,974 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,413 | 0 | 0 | 0 | 0 | 242 | 688 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,708 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14601 | 5,574 | 513 | 54,501 | 6,056 | 0 | 21,542 | 0 | 0 | 0 | 8,285 | 0 | 0 | 0 | 0 | 13,085 | 13,312 |
| 14602 | 3,620 | 331 | 55,286 | 6,143 | 0 | 10,761 | 0 | 0 | 0 | 2,054 | 0 | 0 | 0 | 0 | 4,191 | 4,264 |
| 14603 | 22,353 | 1,199 | 103,107 | 11,456 | 0 | 54,622 | 0 | 0 | 0 | 10,377 | 0 | 0 | 0 | 0 | 20,775 | 21,136 |
| 14604 | 11,212 | 1,031 | 153,278 | 17,031 | 0 | 36,973 | 0 | 0 | 0 | 12,124 | 0 | 0 | 0 | 0 | 16,229 | 16,511 |
| 14701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19,202 | 19,540 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57,866 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75,878 | 76,557 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142,760 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 746,170 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 692,522 | 44,041 | 1,377,621 | 138,172 | NR | 15,718,731 | NR | NR | 147,312 | 27,797,132 | NR | NR | NR | NR | 2,375,236 | 4,290,573 |

NR => Not Reported

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

|  |  |  |  |  |  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCC | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 10101 | 312,947 | 20,963 | 0 | 80,108 | 0 | 0 | 0 | 492,629 | 190,912 | 89,841 | 0 | 113,799 |
| 10102 | 268,459 | 17,983 | 0 | 68,720 | 0 | 0 | 0 | 422,598 | 163,773 | 77,069 | 0 | 97,621 |
| 10103 | 261,231 | 17,499 | 0 | 66,870 | 0 | 0 | 0 | 411,220 | 159,363 | 74,995 | 0 | 94,993 |
| 10104 | 1,679,175 | 112,481 | 0 | 429,837 | 0 | 0 | 0 | 2,643,294 | 1,024,377 | 482,060 | 0 | 610,609 |
| 10105 | 57,290 | 3,838 | 0 | 14,665 | 0 | 0 | 0 | 90,183 | 34,950 | 16,447 | 0 | 20,833 |
| 10106 | 85,960 | 5,758 | 0 | 22,004 | 0 | 0 | 0 | 135,316 | 52,440 | 24,678 | 0 | 31,258 |
| 10201 | 0 | 30 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | 0 | 86 |
| 10202 | 0 | 98 | 0 | 0 | 0 | 0 | 0 | 322 | 0 | 0 | 0 | 277 |
| 10203 | 0 | 4,150 | 0 | 0 | 0 | 0 | 0 | 13,655 | 0 | 0 | 0 | 11,713 |
| 10204 | 0 | 200 | 0 | 0 | 0 | 0 | 0 | 659 | 0 | 0 | 0 | 565 |
| 10206 | 0 | 3,534 | 0 | 0 | 0 | 0 | 0 | 11,627 | 0 | 0 | 0 | 9,974 |
| 10207 | 0 | 431 | 0 | 0 | 0 | 0 | 0 | 1,417 | 0 | 0 | 0 | 1,216 |
| 10208 | 0 | 5,709 | 0 | 0 | 0 | 0 | 0 | 18,784 | 0 | 0 | 0 | 16,114 |
| 10210 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 | 27 |
| 10211 | 0 | 372 | 0 | 0 | 0 | 0 | 0 | 1,224 | 0 | 0 | 0 | 1,050 |
| 10213 | 0 | 195 | 0 | 0 | 0 | 0 | 0 | 640 | 0 | 0 | 0 | 549 |
| 10214 | 41,807 | 0 | 0 | 0 | 0 | 0 | 0 | 99,494 | 75,187 | 13,936 | 5,509 | 18,473 |
| 10215 | 83,019 | 33,145 | 0 | 0 | 0 | 0 | 0 | 198,236 | 53,347 | 132,263 | 0 | 0 |
| 10217 | 0 | 0 | 2,721 | 20,996 | 7,084 | 6,519 | 0 | 33,213 | 0 | 0 | 0 | 0 |
| 10218 | 0 | 0 | 5,965 | 46,034 | 15,532 | 14,294 | 0 | 72,822 | 0 | 0 | 0 | 0 |
| 10220 | 1,405 | 0 | 0 | 493 | 0 | 0 | 0 | 119 | 0 | 0 | 0 | 0 |
| 10221 | 2,625 | 0 | 0 | 922 | 0 | 0 | 0 | 222 | 0 | 0 | 0 | 0 |
| 10301 | 122,670 | 48,975 | 0 | 0 | 0 | 0 | 0 | 292,916 | 78,826 | 195,433 | 0 | 0 |
| 10501 | 0 | 0 | 394,593 | 302,827 | 302,827 | 238,591 | 0 | 4,533,235 | 6,350,199 | 0 | 0 | 4,056,052 |
| 10601 | 0 | 0 | 8,443 | 6,479 | 6,479 | 5,105 | 0 | 96,992 | 135,868 | 0 | 0 | 86,783 |
| 10701 | 0 | 0 | 2,167 | 1,663 | 1,663 | 1,310 | 0 | 24,899 | 34,879 | 0 | 0 | 22,278 |
| 10801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86,886 | 0 | 0 | 0 | 27,307 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11402 | 0 | 107,634 | 61,505 | 26,140 | 0 | 0 | 26,140 | 289,073 | 0 | 0 | 0 | 210,655 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,638 | 0 | 0 | 0 | 0 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,256 | 0 | 0 | 0 | 0 |
| 11702 | 0 | 0 | 1 | 7 | 2 | 2 | 0 | 11 | 0 | 0 | 0 | 0 |
| 11703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11704 | 166 | 0 | 0 | 58 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| 11705 | 6,362 | 818 | 0 | 0 | 0 | 0 | 0 | 3,819 | 9,002 | 3,617 | 0 | 3,238 |
| 11706 | 487 | 0 | 13 | 22 | 0 | 12 | 0 | 21 | 0 | 0 | 0 | 0 |
| 11711 | 0 | 948 | 542 | 230 | 0 | 0 | 230 | 2,546 | 0 | 0 | 0 | 1,856 |
| 11712 | 0 | 0 | 3,065 | 23,650 | 7,980 | 7,344 | 0 | 37,412 | 0 | 0 | 0 | 0 |
| 11713 | 0 | 0 | 344 | 2,654 | 896 | 824 | 0 | 4,199 | 0 | 0 | 0 | 0 |
| 11714 | 3,406 | 0 | 89 | 151 | 0 | 81 | 0 | 144 | 0 | 0 | 0 | 0 |
| 11715 | 57,149 | 0 | 1,491 | 2,530 | 0 | 1,355 | 0 | 2,425 | 0 | 0 | 0 | 0 |
| 11716 | 721 | 0 | 0 | 253 | 0 | 0 | 0 | 61 | 0 | 0 | 0 | 0 |
| 11721 | 0 | 410 | 234 | 99 | 0 | 0 | 99 | 1,100 | 0 | 0 | 0 | 802 |
| 11722 | 0 | 0 | 172 | 1,326 | 447 | 411 | 0 | 2,094 | 0 | 0 | 0 | 0 |
| 11723 | 0 | 0 | 19 | 145 | 49 | 45 | 0 | 229 | 0 | 0 | 0 | 0 |
| 11724 | 1,984 | 0 | 32 | 88 | 0 | 47 | 0 | 84 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 11725 | 55,877 | 0 | 1,458 | 2,474 | 0 | 1,325 | 0 | 2,371 | 0 | 0 | 0 | 0 |
| 11726 | 6,914 | 0 | 0 | 2,427 | 0 | 0 | 0 | 585 | 0 | 0 | 0 | 0 |
| 11731 | 0 | 197 | 113 | 48 | 0 | 0 | 48 | 530 | 0 | 0 | 0 | 387 |
| 11732 | 0 | 0 | 76 | 586 | 198 | 182 | 0 | 927 | 0 | 0 | 0 | 0 |
| 11733 | 0 | 0 | 4 | 29 | 10 | 9 | 0 | 46 | 0 | 0 | 0 | 0 |
| 11734 | 1,235 | 0 | 32 | 55 | 0 | 29 | 0 | 52 | 0 | 0 | 0 | 0 |
| 11735 | 64,410 | 0 | 1,680 | 2,851 | 0 | 1,528 | 0 | 2,733 | 0 | 0 | 0 | 0 |
| 11736 | 31,279 | 0 | 0 | 10,982 | 0 | 0 | 0 | 2,646 | 0 | 0 | 0 | 0 |
| 11740 | 0 | 2,303 | 1,316 | 559 | 0 | 0 | 559 | 6,184 | 0 | 0 | 0 | 4,507 |
| 11801 | 150,863 | 0 | 3,936 | 6,679 | 0 | 3,578 | 0 | 6,400 | 0 | 0 | 0 | 0 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12701 | 1,124,304 | 0 | 29,330 | 49,772 | 0 | 26,663 | 0 | 47,698 | 0 | 0 | 0 | 0 |
| 12702 | 4,903 | 0 | 128 | 217 | 0 | 116 | 0 | 208 | 0 | 0 | 0 | 0 |
| 12703 | 113,175 | 0 | 2,952 | 5,010 | 0 | 2,684 | 0 | 4,801 | 0 | 0 | 0 | 0 |
| 12704 | 299 | 0 | 8 | 13 | 0 | 7 | 0 | 13 | 0 | 0 | 0 | 0 |
| 12705 | 146,596 | 0 | 3,624 | 6,490 | 0 | 3,477 | 0 | 6,219 | 0 | 0 | 0 | 0 |
| 12801 | 1,498,564 | 8,461 | 5,137 | 9,368 | 1,813 | 0 | 0 | 41,702 | 19,340 | 18,736 | 0 | 604 |
| 12802 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12803 | 9,537 | 54 | 33 | 60 | 12 | 0 | 0 | 265 | 123 | 119 | 0 | 4 |
| 12901 | 0 | 0 | 19,505 | 163,542 | 54,514 | 71,518 | 0 | 299,577 | 0 | 0 | 0 | 58,515 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 12902 | 0 | 0 | 9,389 | 78,725 | 26,242 | 34,427 | 0 | 144,209 | 0 | 0 | 0 | 28,168 |
| 12903 | 0 | 0 | 1,174 | 9,841 | 3,280 | 4,303 | 0 | 18,026 | 0 | 0 | 0 | 3,521 |
| 12904 | 0 | 0 | 12,407 | 104,030 | 34,677 | 45,493 | 0 | 190,562 | 0 | 0 | 0 | 37,222 |
| 12905 | 0 | 0 | 1,788 | 14,995 | 4,998 | 6,558 | 0 | 27,468 | 0 | 0 | 0 | 5,365 |
| 12906 | 0 | 0 | 10,619 | 89,034 | 29,678 | 38,935 | 0 | 163,093 | 0 | 0 | 0 | 31,856 |
| 12907 | 0 | 0 | 1,006 | 8,435 | 2,812 | 3,689 | 0 | 15,451 | 0 | 0 | 0 | 3,018 |
| 13001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 505,105 | 0 | 0 | 0 | 44,503 |
| 13002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 680,592 | 0 | 0 | 0 | 0 |
| 13101 | 112,588,969 | 54,948 | 36,632 | 54,948 | 36,632 | 18,316 | 0 | 54,948 | 0 | 0 | 0 | 54,948 |
| 13201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14101 | 20,082 | 9,652 | 20,704 | 24,181 | 1,349 | 10,482 | 0 | 14,633 | 0 | 0 | 0 | 0 |
| 14102 | 88,721 | 42,641 | 91,472 | 106,832 | 5,961 | 46,309 | 0 | 64,649 | 0 | 0 | 0 | 0 |
| 14201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14401 | 27,203 | 420 | 399 | 543 | 509 | 261 | 0 | 949 | 378 | 234 | 0 | 261 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14601 | 17,173 | 0 | 0 | 0 | 0 | 0 | 0 | 40,868 | 30,751 | 5,724 | 2,263 | 7,588 |
| 14602 | 5,500 | 0 | 0 | 0 | 0 | 0 | 0 | 13,090 | 9,849 | 1,833 | 725 | 2,430 |
| 14603 | 27,265 | 0 | 0 | 0 | 0 | 0 | 0 | 64,886 | 48,823 | 9,088 | 3,593 | 12,047 |
| 14604 | 21,298 | 0 | 0 | 0 | 0 | 0 | 0 | 50,687 | 38,139 | 7,099 | 2,807 | 9,411 |
| 14701 | 15,436 | 3,126 | 0 | 0 | 0 | 0 | 0 | 110,594 | 42,596 | 17,390 | 0 | 22,471 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15101 | 36,747 | 3,062 | 2,297 | 3,828 | 18,374 | 4,593 | 0 | 730,349 | 2,297 | 0 | 0 | 34,450 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 119,043,212 | 510,042 | 738,833 | ~1,875,523 | 564,017 | 600,425 | 27,077 | 13,343,071 | 8,555,420 | 1,170,561 | 14,897 | 5,799,402 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEN | ACETALDEN | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | THOUSAND MOLES/YEAR | | | | | | | | | | |
| 10101 | 26,952 | 89,841 | 19,466 | 3,743 | 14,225 | 95,082 | 0 | 0 | 0 | 5,989 | 0 |
| 10102 | 23,121 | 77,069 | 16,698 | 3,211 | 12,203 | 81,565 | 0 | 0 | 0 | 5,138 | 0 |
| 10103 | 22,498 | 74,995 | 16,249 | 3,125 | 11,874 | 79,369 | 0 | 0 | 0 | 5,000 | 0 |
| 10104 | 144,618 | 482,060 | 104,446 | 20,086 | 76,326 | 510,180 | 0 | 0 | 0 | 32,137 | 0 |
| 10105 | 4,934 | 16,447 | 3,563 | 685 | 2,604 | 17,406 | 0 | 0 | 0 | 1,096 | 0 |
| 10106 | 7,403 | 24,678 | 5,347 | 1,028 | 3,907 | 26,117 | 0 | 0 | 0 | 1,645 | 0 |
| 10201 | 4 | 0 | 70 | 0 | 94 | 0 | 0 | 192 | 0 | 0 | 0 |
| 10202 | 14 | 0 | 224 | 0 | 303 | 0 | 0 | 618 | 0 | 0 | 0 |
| 10203 | 602 | 0 | 9,505 | 0 | 12,851 | 0 | 0 | 26,171 | 0 | 0 | 0 |
| 10204 | 29 | 0 | 458 | 0 | 620 | 0 | 0 | 1,262 | 0 | 0 | 0 |
| 10206 | 513 | 0 | 8,093 | 0 | 10,943 | 0 | 0 | 22,285 | 0 | 0 | 0 |
| 10207 | 63 | 0 | 986 | 0 | 1,334 | 0 | 0 | 2,716 | 0 | 0 | 0 |
| 10208 | 829 | 0 | 13,075 | 0 | 17,679 | 0 | 0 | 36,003 | 0 | 0 | 0 |
| 10210 | 1 | 0 | 22 | 0 | 30 | 0 | 0 | 61 | 0 | 0 | 0 |
| 10211 | 54 | 0 | 852 | 0 | 1,152 | 0 | 0 | 2,346 | 0 | 0 | 0 |
| 10213 | 28 | 0 | 446 | 0 | 603 | 0 | 0 | 1,227 | 0 | 0 | 0 |
| 10214 | 0 | 648 | 0 | 0 | 34,029 | 58,983 | 115,050 | 0 | 0 | 0 | 0 |
| 10215 | 10,733 | 35,039 | 11,680 | 0 | 21,465 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10217 | 0 | 0 | 0 | 0 | 0 | 162,268 | 0 | 0 | 0 | 0 | 0 |
| 10218 | 0 | 0 | 0 | 0 | 0 | 355,782 | 0 | 0 | 0 | 0 | 0 |
| 10220 | 0 | 0 | 0 | 0 | 0 | 2,866 | 0 | 0 | 988 | 0 | 0 |
| 10221 | 0 | 0 | 0 | 0 | 0 | 5,355 | 0 | 0 | 1,846 | 0 | 0 |
| 10301 | 15,859 | 51,773 | 17,258 | 0 | 31,717 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10801 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11301 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11401 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11402 | 0 | 93,795 | 693,469 | 162,988 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11403 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11404 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11503 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11504 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11702 | 0 | 0 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 0 |
| 11703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11704 | 0 | 0 | 0 | 0 | 0 | 339 | 0 | 0 | 117 | 0 | 0 |
| 11705 | 889 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11706 | 7 | 3 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 |
| 11711 | 0 | 826 | 6,108 | 1,436 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11712 | 0 | 0 | 0 | 0 | 0 | 182,782 | 0 | 0 | 0 | 0 | 0 |
| 11713 | 0 | 0 | 0 | 0 | 0 | 20,514 | 0 | 0 | 0 | 0 | 0 |
| 11714 | 50 | 22 | 0 | 0 | 0 | 260 | 0 | 0 | 0 | 0 | 0 |
| 11715 | 843 | 361 | 0 | 0 | 0 | 4,367 | 0 | 0 | 0 | 0 | 0 |
| 11716 | 0 | 0 | 0 | 0 | 0 | 1,471 | 0 | 0 | 507 | 0 | 0 |
| 11721 | 0 | 357 | 2,639 | 620 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11722 | 0 | 0 | 0 | 0 | 0 | 10,229 | 0 | 0 | 0 | 0 | 0 |
| 11723 | 0 | 0 | 0 | 0 | 0 | 1,118 | 0 | 0 | 0 | 0 | 0 |
| 11724 | 29 | 13 | 0 | 0 | 0 | 152 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
| 11725 | 825 | 353 | 0 | 0 | 0 | 4,270 | 0 | 0 | 0 | 0 | 0 |
| 11726 | 0 | 0 | 0 | 0 | 0 | 14,103 | 0 | 0 | 4,861 | 0 | 0 |
| 11731 | 0 | 172 | 1,272 | 299 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11732 | 0 | 0 | 0 | 0 | 0 | 4,528 | 0 | 0 | 0 | 0 | 0 |
| 11733 | 0 | 0 | 0 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 |
| 11734 | 18 | 8 | 0 | 0 | 0 | 94 | 0 | 0 | 0 | 0 | 0 |
| 11735 | 950 | 407 | 0 | 0 | 0 | 4,922 | 0 | 0 | 0 | 0 | 0 |
| 11736 | 0 | 0 | 0 | 0 | 0 | 63,802 | 0 | 0 | 21,991 | 0 | 0 |
| 11740 | 0 | 2,007 | 14,835 | 3,487 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11801 | 2,226 | 954 | 0 | 0 | 0 | 11,528 | 0 | 0 | 0 | 0 | 0 |
| 12001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12121 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12502 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12601 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12602 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12604 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12605 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12606 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12613 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12614 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12615 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12624 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12626 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12641 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12642 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12643 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12644 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12701 | 16,591 | 7,110 | 0 | 0 | 0 | 85,915 | 0 | 0 | 0 | 0 | 0 |
| 12702 | 72 | 31 | 0 | 0 | 0 | 375 | 0 | 0 | 0 | 0 | 0 |
| 12703 | 1,670 | 716 | 0 | 0 | 0 | 8,648 | 0 | 0 | 0 | 0 | 0 |
| 12704 | 4 | 2 | 0 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 |
| 12705 | 2,163 | 927 | 0 | 0 | 0 | 11,202 | 0 | 0 | 0 | 0 | 0 |
| 12801 | 5,742 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35,659 | 0 | 0 |
| 12802 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12803 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 227 | 0 | 0 |
| 12901 | 7,502 | 13,503 | 10,503 | 0 | 7,002 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

| SCC | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | THOUSAND MOLES/YEAR | | | | | | | | | | |
| 12902 | 3,611 | 6,500 | 5,056 | 0 | 3,370 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12903 | 451 | 813 | 632 | 0 | 421 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12904 | 4,772 | 8,590 | 6,681 | 0 | 4,454 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12905 | 688 | 1,238 | 963 | 0 | 642 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12906 | 4,084 | 7,351 | 5,718 | 0 | 3,812 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12907 | 387 | 696 | 542 | 0 | 361 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13001 | 0 | 31,894 | 28,185 | 0 | 0 | 0 | 0 | 0 | 127,574 | 140,183 | 0 |
| 13002 | 0 | 38,968 | 16,125 | 27,546 | 0 | 0 | 0 | 0 | 36,952 | 61,811 | 14,781 |
| 13101 | 0 | 18,316 | 18,316 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13701 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13702 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13705 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13902 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14101 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14102 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14205 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14401 | 316 | 7 | 0 | 0 | 0 | 96 | 0 | 0 | 0 | 0 | 0 |
| 14501 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14601 | 0 | 266 | 0 | 0 | 14,111 | 24,095 | 47,258 | 0 | 0 | 0 | 0 |
| 14602 | 0 | 85 | 0 | 0 | 4,520 | 7,717 | 15,136 | 0 | 0 | 0 | 0 |
| 14603 | 0 | 423 | 0 | 0 | 22,404 | 38,255 | 75,031 | 0 | 0 | 0 | 0 |
| 14604 | 0 | 330 | 0 | 0 | 17,501 | 29,884 | 58,612 | 0 | 0 | 0 | 0 |
| 14701 | 8,011 | 4,885 | 1,563 | 0 | 2,931 | 3,126 | 977 | 586 | 72,492 | 3,517 | 1,759 |
| 14901 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15101 | 4,593 | 22,201 | 17,608 | 5,359 | 2,297 | 3,828 | 0 | 0 | 45,168 | 49,762 | 8,421 |
| 15201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 325,070 | 1,116,680 | 1,058,653 | 233,614 | 337,784 | 1,932,933 | 312,064 | 93,467 | 348,381 | 306,279 | 24,961 |

For conversion of hydrocarbon classes to tons/year, see discussion in **Appendix E.**

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA SOURCES

| Province | | | | | | | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| Alberta | 51,910 | 1,291 | 329,384 | 32,408 | 0 | 3,005,269 | 0 | 0 | 53,080 | 8,767,433 | 0 | 0 | 0 | 0 | 537,586 | 741,839 |
| British Columb. | 42,554 | 3,123 | 183,224 | 19,285 | 0 | 2,035,935 | 0 | 0 | 6,518 | 1,932,312 | 0 | 0 | 0 | 0 | 260,165 | 502,632 |
| Manitoba | 9,944 | 531 | 88,718 | 10,693 | 0 | 1,599,921 | 0 | 0 | 19,455 | 3,113,425 | 0 | 0 | 0 | 0 | 225,491 | 316,540 |
| New Brunswick | 53,511 | 4,302 | 33,795 | 3,038 | 0 | 341,763 | 0 | 0 | 939 | 386,395 | 0 | 0 | 0 | 0 | 42,010 | 103,832 |
| Newfoundland | 40,452 | 3,217 | 31,087 | 2,665 | 0 | 197,060 | 0 | 0 | 123 | 192,773 | 0 | 0 | 0 | 0 | 26,981 | 76,696 |
| Nova Scotia | 41,146 | 3,230 | 43,042 | 4,043 | 0 | 378,427 | 0 | 0 | 1,276 | 708,372 | 0 | 0 | 0 | 0 | 63,195 | 137,842 |
| Ontario | 162,161 | 8,702 | 387,719 | 37,554 | 0 | 4,108,803 | 0 | 0 | 32,758 | 6,401,794 | 0 | 0 | 0 | 0 | 637,371 | 1,378,759 |
| Prince Edward | 2,782 | 214 | 5,146 | 496 | 0 | 57,909 | 0 | 0 | 832 | 41,462 | 0 | 0 | 0 | 0 | 6,492 | 17,192 |
| Quebec | 345,737 | 23,244 | 275,049 | 23,563 | 0 | 2,236,111 | 0 | 0 | 15,650 | 2,242,053 | 0 | 0 | 0 | 0 | 322,901 | 872,031 |
| Saskatchewan | 13,178 | 693 | 141,404 | 18,564 | 0 | 3,365,737 | 0 | 0 | 31,752 | 6,855,074 | 0 | 0 | 0 | 0 | 496,059 | 582,184 |
| Canada | 763,375 | 48,547 | 1,518,567 | 152,309 | NR | 17,326,935 | NR | NR | 162,384 | 30,641,093 | NR | NR | NR | NR | 2,618,250 | 4,729,547 |

| Province | | | | | | | METRIC TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | PB | CO | HCL | HF | NH3 | TSP | CA | MG | NA | K | VOC | THC |
| Alberta | 47,092 | 1,171 | 298,812 | 29,400 | 0 | 2,726,334 | 0 | 0 | 48,153 | 7,953,682 | 0 | 0 | 0 | 0 | 487,690 | 672,985 |
| British Columb. | 38,604 | 2,833 | 166,218 | 17,495 | 0 | 1,846,969 | 0 | 0 | 5,913 | 1,752,964 | 0 | 0 | 0 | 0 | 236,018 | 455,980 |
| Manitoba | 9,021 | 482 | 80,483 | 9,701 | 0 | 1,451,424 | 0 | 0 | 17,649 | 2,824,452 | 0 | 0 | 0 | 0 | 204,562 | 287,160 |
| New Brunswick | 48,544 | 3,903 | 30,659 | 2,756 | 0 | 310,042 | 0 | 0 | 852 | 350,532 | 0 | 0 | 0 | 0 | 38,111 | 94,195 |
| Newfoundland | 36,697 | 2,918 | 28,201 | 2,418 | 0 | 178,770 | 0 | 0 | 112 | 174,881 | 0 | 0 | 0 | 0 | 24,477 | 69,577 |
| Nova Scotia | 37,327 | 2,930 | 39,047 | 3,667 | 0 | 343,303 | 0 | 0 | 1,158 | 642,624 | 0 | 0 | 0 | 0 | 57,329 | 125,049 |
| Ontario | 147,110 | 7,894 | 351,732 | 34,069 | 0 | 3,727,443 | 0 | 0 | 29,718 | 5,807,610 | 0 | 0 | 0 | 0 | 578,213 | 1,250,789 |
| Prince Edward | 2,524 | 194 | 4,668 | 450 | 0 | 52,534 | 0 | 0 | 755 | 37,614 | 0 | 0 | 0 | 0 | 5,889 | 15,596 |
| Quebec | 313,647 | 21,087 | 249,520 | 21,376 | 0 | 2,028,566 | 0 | 0 | 14,197 | 2,033,956 | 0 | 0 | 0 | 0 | 292,930 | 791,093 |
| Saskatchewan | 11,955 | 629 | 128,279 | 16,841 | 0 | 3,053,345 | 0 | 0 | 28,805 | 6,218,819 | 0 | 0 | 0 | 0 | 450,017 | 528,148 |
| Canada | 692,522 | 44,041 | 1,377,621 | 138,172 | NR | 15,718,731 | NR | NR | 147,312 | 27,797,132 | NR | NR | NR | NR | 2,375,236 | 4,290,573 |

NR => Not Reported

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA SOURCES

THOUSAND MOLES/YEAR

| Province | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENT | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATIC | FORMALDEH | ACETALDEH | ALDEH | ACETONE | KETONES | ING. A. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alberta | 11,489,078 | 121,271 | 257,014 | 392,120 | 109,219 | 163,149 | 11,367 | 2,365,672 | 1,966,254 | 140,614 | 3,606 | 1,347,453 | 57,075 | 167,838 | 339,491 | 77,893 | 52,867 | 252,821 | 75,355 | 14,442 | 16,534 | 20,379 | 2,245 |
| Brit.Col. | 13,608,791 | 85,768 | 51,618 | 189,119 | 38,813 | 39,608 | 8,916 | 1,268,775 | 455,380 | 156,334 | 2,105 | 370,995 | 40,868 | 157,447 | 281,081 | 63,336 | 47,613 | 222,541 | 44,046 | 19,892 | 56,212 | 35,850 | 2,796 |
| Manitoba | 5,131,680 | 20,986 | 67,036 | 104,871 | 56,023 | 47,061 | 93 | 1,106,019 | 1,107,275 | 73,814 | 1,122 | 703,885 | 15,945 | 53,239 | 18,971 | 3,593 | 21,103 | 59,227 | 23,473 | 4,052 | 8,514 | 9,589 | 1,046 |
| New Brun. | 3,481,796 | 15,270 | 15,089 | 52,030 | 8,918 | 13,871 | 257 | 235,486 | 65,434 | 30,142 | 305 | 49,050 | 8,075 | 27,531 | 16,280 | 3,403 | 9,310 | 49,909 | 6,381 | 4,249 | 7,234 | 5,738 | 653 |
| Newfound. | 2,809,355 | 7,039 | 3,696 | 29,666 | 6,047 | 6,370 | 48 | 160,549 | 42,847 | 20,811 | 273 | 30,369 | 5,518 | 18,777 | 7,577 | 1,672 | 6,262 | 57,082 | 5,697 | 2,107 | 4,526 | 4,344 | 543 |
| Nova Scot | 4,196,542 | 23,557 | 16,762 | 61,304 | 9,565 | 13,147 | 2,292 | 317,359 | 80,954 | 37,289 | 440 | 74,844 | 10,808 | 44,774 | 71,677 | 16,708 | 10,030 | 67,152 | 9,207 | 1,578 | 6,900 | 7,445 | 831 |
| Ontario | 41,884,678 | 111,814 | 108,479 | 510,048 | 137,337 | 134,651 | 163 | 3,627,363 | 1,705,607 | 370,022 | 3,528 | 1,157,829 | 100,810 | 343,631 | 123,157 | 23,301 | 100,300 | 602,966 | 74,190 | 26,972 | 148,457 | 135,421 | 9,158 |
| Prince Ed | 604,043 | 1,756 | 669 | 6,853 | 1,302 | 1,382 | 28 | 39,327 | 10,093 | 5,517 | 46 | 7,379 | 1,449 | 5,074 | 2,302 | 504 | 1,414 | 8,195 | 967 | 300 | 675 | 1,034 | 117 |
| Quebec | 31,035,854 | 74,960 | 40,628 | 332,541 | 69,163 | 72,394 | 248 | 1,956,759 | 520,891 | 233,036 | 2,126 | 378,410 | 65,440 | 221,808 | 81,390 | 17,256 | 61,611 | 546,117 | 44,642 | 15,814 | 92,755 | 77,223 | 6,591 |
| Saskatch. | 4,803,395 | 47,622 | 177,840 | 196,972 | 127,630 | 108,791 | 3,664 | 2,265,764 | 2,600,684 | 102,982 | 1,345 | 1,679,188 | 19,082 | 76,561 | 116,728 | 25,948 | 27,275 | 66,923 | 28,105 | 4,061 | 6,574 | 9,256 | 951 |
| Canada | 119,043,212 | 510,042 | 738,833 | 1,875,523 | 564,017 | 600,425 | 27,077 | 13,343,071 | 8,555,420 | 1,170,561 | 14,897 | 5,799,402 | 325,070 | 1,116,680 | 1,058,653 | 233,614 | 337,784 | 1,932,933 | 312,064 | 93,467 | 348,381 | 306,279 | 24,961 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | | | | | | |
| 101002 | 447,467 | 8,485 | 132,194 | 4,088 | 0 | 15,061 | 0 | 0 | 0 | 116,032 | 1,880 | 1,984 | 951 | 511 | 4,498 | 4,595 |
| 101003 | 3,320 | 46 | 844 | 26 | 0 | 251 | 0 | 0 | 0 | 12,215 | 198 | 209 | 100 | 54 | 71 | 73 |
| 101004 | 145,392 | 8,077 | 22,660 | 462 | 0 | 1,709 | 0 | 0 | 0 | 11,744 | 0 | 0 | 0 | 0 | 499 | 560 |
| 101005 | 27,358 | 1,086 | 5,010 | 102 | 0 | 317 | 0 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 146 | 146 |
| 101006 | 5,991 | 0 | 11,956 | 629 | 0 | 420 | 0 | 0 | 0 | 428 | 0 | 0 | 0 | 0 | 12 | 27 |
| 102002 | 1,234 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 146,057 | 4,531 | 17,212 | 351 | 0 | 1,050 | 0 | 0 | 0 | 13,968 | 0 | 0 | 0 | 0 | 212 | 238 |
| 102006 | 3,032 | 258 | 11,506 | 606 | 0 | 496 | 0 | 0 | 0 | 853 | 0 | 0 | 0 | 0 | 119 | 271 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 59,271 | 190 | 2,569 | 453 | 0 | 0 | 0 | 0 | 0 | 13,826 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 214,533 | 33 | 49,249 | 5,472 | 0 | 23 | 0 | 0 | 0 | 8,483 | 0 | 0 | 0 | 0 | 2 | 2 |
| 201002 | 5 | 0 | 1,576 | 101 | 0 | 93 | 0 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 3 | 10 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,636 | 0 | 0 | 0 | 0 | 0 | 115,309 | 115,309 |
| 301005 | 1,842 | 0 | 0 | 0 | 0 | 123,494 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 66 | 66 |
| 301013 | 0 | 0 | 7,209 | 379 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 284 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 409 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50,439 | 50,708 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 413 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,482 | 1,058 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 17,520 | 862 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,042 | 9,042 |
| 301027 | 0 | 0 | 178 | 9 | 0 | 0 | 0 | 0 | 499 | 1,636 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 320 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 255 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,791 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301035 | 2,920 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,795 | 5,446 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,458 | 1,484 |
| 301157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,655 | 1,685 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,470 | 2,514 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,078 | 7,078 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,504 | 8,504 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 14,052 | 71 | 8,068 | 425 | 0 | 0 | 0 | 0 | 0 | 10,328 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,668 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303003 | 10,140 | 830 | 5 | 0 | 0 | 775 | 0 | 0 | 560 | 22,145 | 0 | 0 | 0 | 0 | 672 | 1,438 |
| 303004 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 | 512 | 0 | 0 | 0 | 0 | 21 | 46 |
| 303005 | 1,680,647 | 31,882 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33,957 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303006 | 13,440 | 2,359 | 0 | 0 | 0 | 25,453 | 0 | 0 | 0 | 28,413 | 301 | 412 | 384 | 0 | 0 | 0 |
| 303008 | 190,845 | 528 | 0 | 0 | 0 | 27,713 | 0 | 0 | 0 | 35,954 | 1,431 | 597 | 626 | 2,024 | 0 | 0 |
| 303009 | 3,010 | 26 | 19 | 1 | 0 | 43,587 | 0 | 0 | 72 | 44,043 | 0 | 0 | 0 | 0 | 381 | 429 |
| 303010 | 33,359 | 1,195 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,351 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 16,696 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 229 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303023 | 221 | 0 | 0 | 0 | 0 | 37,547 | 0 | 0 | 0 | 167,296 | 820 | 402 | 0 | 0 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 247 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 4,577 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,490 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,948 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 9,120 | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,833 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TONS/YEAR | | | | | | | | | | | | | | | |
| 304001 | 29,650 | 232 | 0 | 0 | 0 | 106,787 | 0 | 0 | 0 | 19,738 | 0 | 0 | 0 | 0 | 882 | 1,393 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 | 18 | 11 | 0 | 0 | 0 | 0 |
| 304010 | 571,740 | 7,889 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,933 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 625 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305006 | 0 | 496 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,325 | 4,368 | 120 | 0 | 0 | 0 | 0 |
| 305007 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 131 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,536 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,102 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305015 | 0 | 5,594 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,771 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305016 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,090 | 7,486 | 1,107 | 110 | 0 | 0 | 0 |
| 305019 | 1,288 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,896 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,059 | 61 | 18 | 0 | 0 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,734 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,177 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,254 | 8 | 9 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29,948 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,257 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10,841 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306001 | 51,645 | 5,760 | 21,434 | 782 | 0 | 1,627 | 0 | 0 | 0 | 4,222 | 0 | 0 | 0 | 0 | 291 | 384 |
| 306002 | 35,655 | 461 | 5,482 | 967 | 0 | 191,381 | 0 | 0 | 4,021 | 9,593 | 0 | 0 | 0 | 0 | 23,221 | 36,280 |
| 306006 | 68 | 6 | 88 | 15 | 0 | 8 | 0 | 0 | 0 | 30 | 0 | 0 | 0 | 0 | 1 | 2 |
| 306008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75,374 | 79,023 |
| 306012 | 33 | 2 | 43 | 8 | 0 | 3 | 0 | 0 | 0 | 294 | 0 | 0 | 0 | 0 | 1 | 2 |
| 306014 | 704 | 3 | 52 | 3 | 0 | 58 | 0 | 0 | 6 | 919 | 0 | 0 | 0 | 0 | 46 | 104 |
| 306888 | 10,785 | 54 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 29,755 | 34,263 | 14,524 | 764 | 0 | 57,965 | 0 | 0 | 0 | 80,065 | 96 | 0 | 1,105 | 0 | 10,879 | 11,962 |
| 307002 | 73,097 | 923 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,008 | 0 | 0 | 0 | 0 | 0 | 0 |
| 310002 | 446,224 | 2,135 | 43,411 | 2,285 | 0 | 5,784 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 15,368 | 20,455 |
| 310004 | 277 | 0 | 3,391 | 178 | 0 | 7 | 0 | 0 | 0 | 112 | 0 | 0 | 0 | 0 | 62 | 87 |
| 310888 | 1,851 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44,626 | 50,597 |
| 501001 | 1,201 | 0 | 1,181 | 208 | 0 | 16,477 | 0 | 0 | 188 | 1,869 | 11 | 3 | 11 | 9 | 136 | 693 |
| 501002 | 98 | 0 | 7 | 1 | 0 | 674 | 0 | 0 | 17 | 326 | 2 | 0 | 2 | 2 | 8 | 8 |
| 501005 | 7 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 2 |
| 503001 | 11,757 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 1,077 | 0 | 275 | 48 | 0 | 0 | 0 | 0 | 15 | 286 | 0 | 0 | 0 | 0 | 14 | 81 |
| 503007 | 12,552 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 4,331,797 | 118,723 | 360,149 | 18,368 | NR | 658,788 | NR | NR | 47,290 | 867,499 | 16,680 | 4,870 | 3,289 | 2,599 | 373,649 | 405,710 |

NR = NOT REPORTED

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

|  | METRIC TONS/YEAR |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| 101002 | 405,943 | 7,698 | 119,926 | 3,709 | 0 | 13,663 | 0 | 0 | 0 | 105,264 | 1,705 | 1,800 | 863 | 463 | 4,081 | 4,169 |
| 101003 | 3,012 | 42 | 766 | 24 | 0 | 228 | 0 | 0 | 0 | 11,081 | 180 | 189 | 91 | 49 | 65 | 66 |
| 101004 | 131,900 | 7,327 | 20,557 | 420 | 0 | 1,550 | 0 | 0 | 0 | 10,654 | 0 | 0 | 0 | 0 | 452 | 508 |
| 101005 | 24,819 | 985 | 4,545 | 93 | 0 | 288 | 0 | 0 | 0 | 56 | 0 | 0 | 0 | 0 | 133 | 133 |
| 101006 | 5,435 | 0 | 10,846 | 571 | 0 | 381 | 0 | 0 | 0 | 388 | 0 | 0 | 0 | 0 | 11 | 25 |
| 102002 | 1,119 | 90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 132,503 | 4,111 | 15,615 | 319 | 0 | 953 | 0 | 0 | 0 | 12,672 | 0 | 0 | 0 | 0 | 192 | 216 |
| 102006 | 2,751 | 234 | 10,439 | 549 | 0 | 450 | 0 | 0 | 0 | 774 | 0 | 0 | 0 | 0 | 108 | 246 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 53,771 | 172 | 2,330 | 411 | 0 | 0 | 0 | 0 | 0 | 12,543 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 194,625 | 30 | 44,679 | 4,964 | 0 | 21 | 0 | 0 | 0 | 7,696 | 0 | 0 | 0 | 0 | 2 | 2 |
| 201002 | 5 | 0 | 1,430 | 91 | 0 | 84 | 0 | 0 | 0 | 68 | 0 | 0 | 0 | 0 | 3 | 9 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26,886 | 0 | 0 | 0 | 0 | 0 | 104,608 | 104,608 |
| 301005 | 1,671 | 0 | 0 | 0 | 0 | 112,034 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 60 | 60 |
| 301013 | 0 | 0 | 6,540 | 344 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 258 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 371 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45,759 | 46,002 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 375 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,344 | 960 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 15,894 | 782 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,203 | 8,203 |
| 301027 | 0 | 0 | 161 | 8 | 0 | 0 | 0 | 0 | 453 | 1,484 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 290 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 231 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,625 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301035 | 2,649 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,793 | 4,941 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301132 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,323 | 1,346 |
| 301157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,502 | 1,528 |
| 301174 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,241 | 2,281 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,421 | 6,421 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,715 | 7,715 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 12,748 | 64 | 7,320 | 385 | 0 | 0 | 0 | 0 | 0 | 9,370 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,328 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303003 | 9,199 | 753 | 4 | 0 | 0 | 703 | 0 | 0 | 508 | 20,090 | 0 | 0 | 0 | 0 | 609 | 1,305 |
| 303004 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 | 464 | 0 | 0 | 0 | 0 | 19 | 42 |
| 303005 | 1,524,687 | 28,923 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,806 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303006 | 12,193 | 2,140 | 0 | 0 | 0 | 23,091 | 0 | 0 | 0 | 25,776 | 273 | 374 | 348 | 0 | 0 | 0 |
| 303008 | 173,135 | 479 | 0 | 0 | 0 | 25,141 | 0 | 0 | 0 | 32,618 | 1,298 | 541 | 568 | 1,836 | 0 | 0 |
| 303009 | 2,731 | 24 | 17 | 1 | 0 | 39,542 | 0 | 0 | 65 | 39,956 | 0 | 0 | 0 | 0 | 346 | 389 |
| 303010 | 30,263 | 1,084 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,040 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 15,147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303023 | 200 | 0 | 0 | 0 | 0 | 34,063 | 0 | 0 | 0 | 151,771 | 744 | 364 | 0 | 0 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 224 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 4,152 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,073 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28,983 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 8,274 | 41 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,477 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| 6-DIGIT SCC | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
| 304001 | 26,899 | 210 | 0 | 0 | 0 | 96,877 | 0 | 0 | 0 | 17,906 | 0 | 0 | 0 | 0 | 800 | 1,264 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 | 17 | 10 | 0 | 0 | 0 | 0 |
| 304010 | 518,684 | 7,157 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,362 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 567 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305006 | 0 | 450 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,903 | 3,962 | 108 | 0 | 0 | 0 | 0 |
| 305007 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 119 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,022 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305015 | 0 | 5,075 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,957 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305016 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,040 | 6,792 | 1,004 | 100 | 0 | 0 | 0 |
| 305019 | 1,168 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,421 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 961 | 55 | 16 | 0 | 0 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,924 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,676 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,138 | 7 | 8 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,169 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13,841 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,835 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306001 | 46,852 | 5,225 | 19,445 | 709 | 0 | 1,476 | 0 | 0 | 0 | 3,830 | 0 | 0 | 0 | 0 | 264 | 348 |
| 306002 | 32,346 | 418 | 4,973 | 878 | 0 | 173,621 | 0 | 0 | 3,648 | 8,703 | 0 | 0 | 0 | 0 | 21,067 | 32,913 |
| 306006 | 62 | 5 | 79 | 14 | 0 | 7 | 0 | 0 | 0 | 27 | 0 | 0 | 0 | 0 | 1 | 2 |
| 306008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68,380 | 71,690 |
| 306012 | 30 | 2 | 39 | 7 | 0 | 3 | 0 | 0 | 0 | 267 | 0 | 0 | 0 | 0 | 1 | 2 |
| 306014 | 639 | 3 | 47 | 2 | 0 | 53 | 0 | 0 | 5 | 834 | 0 | 0 | 0 | 0 | 42 | 95 |
| 306888 | 9,784 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 26,994 | 31,083 | 13,176 | 693 | 0 | 52,586 | 0 | 0 | 0 | 72,635 | 87 | 0 | 1,002 | 0 | 9,869 | 10,852 |
| 307002 | 66,314 | 837 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 914 | 0 | 0 | 0 | 0 | 0 | 0 |
| 310002 | 404,815 | 1,937 | 39,383 | 2,073 | 0 | 5,247 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 13,942 | 18,557 |
| 310004 | 251 | 0 | 3,076 | 162 | 0 | 6 | 0 | 0 | 0 | 102 | 0 | 0 | 0 | 0 | 56 | 79 |
| 310888 | 1,679 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40,485 | 45,902 |
| 501001 | 1,090 | 0 | 1,071 | 189 | 0 | 14,948 | 0 | 0 | 171 | 1,696 | 10 | 2 | 10 | 8 | 123 | 629 |
| 501002 | 89 | 0 | 6 | 1 | 0 | 611 | 0 | 0 | 15 | 296 | 2 | 0 | 2 | 1 | 7 | 7 |
| 501005 | 6 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 2 |
| 503001 | 10,666 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 977 | 0 | 249 | 44 | 0 | 0 | 0 | 0 | 14 | 259 | 0 | 0 | 0 | 0 | 12 | 73 |
| 503007 | 11,387 | 52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 3,929,816 | 107,706 | 326,728 | 16,663 | NR | 597,654 | NR | NR | 42,902 | 786,997 | 15,132 | 4,418 | 2,983 | 2,358 | 338,975 | 368,061 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

| 6-DIGIT SCC | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 101002 | 0 | 2,918 | 1,667 | 709 | 0 | 0 | 709 | 7,837 | 0 | 0 | 0 | 5,711 |
| 101003 | 0 | 46 | 26 | 11 | 0 | 0 | 11 | 125 | 0 | 0 | 0 | 91 |
| 101004 | 3,487 | 0 | 0 | 1,225 | 0 | 0 | 0 | 295 | 0 | 0 | 0 | 0 |
| 101005 | 0 | 0 | 36 | 279 | 94 | 86 | 0 | 440 | 0 | 0 | 0 | 0 |
| 101006 | 861 | 0 | 22 | 38 | 0 | 20 | 0 | 36 | 0 | 0 | 0 | 0 |
| 102002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 1,481 | 0 | 0 | 520 | 0 | 0 | 0 | 125 | 0 | 0 | 0 | 0 |
| 102006 | 8,573 | 0 | 223 | 381 | 0 | 204 | 0 | 363 | 0 | 0 | 0 | 0 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 19 | 7 | 0 | 7 |
| 201002 | 396 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 591,036 | 805,482 | 223,861 | 0 | 318,009 |
| 301005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 338 | 461 | 128 | 0 | 182 |
| 301013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301018 | 11,004 | 2,229 | 0 | 0 | 0 | 0 | 0 | 78,419 | 30,226 | 528,813 | 0 | 181,294 |
| 301019 | 18,689 | 49 | 75 | 142 | 26 | 0 | 0 | 633 | 0 | 277 | 0 | 0 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85,392 | 0 | 0 | 0 | 0 |
| 301027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301132 | 1,063 | 215 | 0 | 0 | 0 | 0 | 0 | 7,579 | 2,921 | 1,198 | 0 | 1,535 |
| 301157 | 1,207 | 245 | 0 | 0 | 0 | 0 | 0 | 8,604 | 3,316 | 1,360 | 0 | 1,742 |
| 301174 | 1,802 | 365 | 0 | 0 | 0 | 0 | 0 | 12,839 | 4,949 | 2,030 | 0 | 2,600 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 200,404 | 0 | 0 | 0 | 0 |
| 301258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303003 | 36,841 | 3,470 | 144 | 0 | 0 | 0 | 0 | 600 | 12,889 | 587 | 0 | 144 |
| 303004 | 1,178 | 111 | 5 | 0 | 0 | 0 | 0 | 19 | 412 | 19 | 0 | 5 |
| 303005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303009 | 2,693 | 0 | 3,522 | 0 | 0 | 0 | 0 | 2,047 | 0 | 0 | 0 | 0 |
| 303010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304001 | 28,919 | 0 | 607 | 1,656 | 265 | 720 | 0 | 3,893 | 0 | 0 | 0 | 0 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | METHANE | ETHANE | PROPANE | BUTANE | ISO-BUTANE | PENTANE | ISO-PENTANE | ALKANES | ETHYLENE | PROPYLENE | ISO-BUTENE | ALKENES |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306001 | 5,265 | 0 | 93 | 751 | 0 | 85 | 0 | 294 | 0 | 0 | 0 | 0 |
| 306002 | 738,573 | 0 | 0 | 0 | 0 | 0 | 0 | 49,699 | 0 | 0 | 0 | 0 |
| 306006 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 306008 | 129,758 | 40,863 | 96,064 | 176,357 | 55,201 | 119,005 | 0 | 457,380 | 0 | 0 | 0 | 0 |
| 306012 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 |
| 306014 | 3,305 | 0 | 86 | 147 | 0 | 79 | 0 | 140 | 0 | 0 | 0 | 0 |
| 306888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 61,248 | 0 | 1,597 | 2,719 | 0 | 1,456 | 0 | 108,399 | 0 | 0 | 0 | 0 |
| 307002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 310002 | 76,748 | 112,532 | 69,462 | 64,281 | 12,306 | 0 | 0 | 13,363 | 18,211 | 72,418 | 0 | 7,190 |
| 310004 | 372 | 546 | 337 | 312 | 60 | 0 | 0 | 0 | 0 | 327 | 0 | 0 |
| 310888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 177,639 | 85,377 | 183,147 | 213,901 | 11,934 | 92,721 | 0 | 129,443 | 0 | 0 | 0 | 0 |
| 501001 | 31,177 | 176 | 107 | 195 | 38 | 0 | 0 | 868 | 402 | 390 | 0 | 13 |
| 501002 | 0 | 0 | 3 | 2 | 2 | 2 | 0 | 36 | 50 | 0 | 0 | 32 |
| 501005 | 91 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| 503001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 3,683 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 228 | 9 | 0 | 0 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 1,346,149 | 249,211 | 357,224 | 463,625 | 79,927 | 214,379 | 720 | 1,760,662 | 879,572 | 831,425 | NR | 518,552 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

THOUSAND MOLES/YEAR

| 6-DIGIT SCC | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 101002 | 0 | 2,543 | 18,800 | 4,419 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101003 | 0 | 40 | 299 | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101004 | 0 | 0 | 0 | 0 | 0 | 7,106 | 0 | 0 | 0 | 0 | 0 |
| 101005 | 0 | 0 | 0 | 0 | 0 | 2,151 | 0 | 0 | 2,450 | 0 | 0 |
| 101006 | 13 | 5 | 0 | 0 | 0 | 66 | 0 | 0 | 0 | 0 | 0 |
| 102002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102004 | 0 | 0 | 0 | 0 | 0 | 3,017 | 0 | 0 | 0 | 0 | 0 |
| 102006 | 128 | 54 | 0 | 0 | 0 | 656 | 0 | 0 | 1,040 | 0 | 0 |
| 102008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 102014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 105001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201001 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 201002 | 0 | 0 | 0 | 0 | 0 | 91 | 0 | 0 | 0 | 0 | 0 |
| 301003 | 133,898 | 46,028 | 12,553 | 0 | 56,488 | 59,627 | 16,737 | 11,507 | 0 | 0 | 6,276 |
| 301005 | 77 | 26 | 7 | 0 | 32 | 34 | 10 | 7 | 0 | 0 | 4 |
| 301013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301017 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301018 | 5,711 | 3,482 | 1,114 | 0 | 2,089 | 2,229 | 696 | 418 | 51,397 | 2,507 | 1,254 |
| 301019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 555 | 0 | 0 |
| 301021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301026 | 2,953 | 328 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301130 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301132 | 552 | 337 | 108 | 0 | 202 | 215 | 67 | 40 | 4,967 | 242 | 121 |
| 301157 | 627 | 382 | 122 | 0 | 229 | 245 | 76 | 46 | 5,639 | 275 | 138 |
| 301174 | 935 | 570 | 182 | 0 | 342 | 365 | 114 | 68 | 8,415 | 410 | 205 |
| 301250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301258 | 48,051 | 0 | 37,311 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 301830 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303003 | 2,348 | 104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303004 | 75 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303999 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 304001 | 291 | 126 | 0 | 0 | 0 | 7,558 | 0 | 0 | 0 | 0 | 0 |
| 304006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

|  | THOUSAND MOLES/YEAR |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6-DIGIT SCC | BENZENE | TOLUENE | XYLENE | ETH BENZ | AROMATICS | FORMALDEH | ACETALDEH | ALDEHYDES | ACETONE | KETONES | ORG ACIDS |
| 304010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305016 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 305040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306001 | 53 | 23 | 0 | 0 | 0 | 3,707 | 0 | 0 | 1,184 | 0 | 0 |
| 306002 | 0 | 0 | 0 | 0 | 0 | 558,867 | 0 | 0 | 0 | 0 | 0 |
| 306006 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 |
| 306008 | 22,224 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 306012 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 |
| 306014 | 49 | 21 | 0 | 0 | 0 | 253 | 0 | 0 | 0 | 0 | 0 |
| 306888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 307001 | 912 | 386 | 0 | 0 | 0 | 4,684 | 0 | 0 | 0 | 0 | 0 |
| 307002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 310002 | 3,027 | 1,041 | 284 | 0 | 1,277 | 42,313 | 378 | 260 | 0 | 0 | 142 |
| 310004 | 0 | 0 | 0 | 0 | 0 | 199 | 0 | 0 | 0 | 0 | 0 |
| 310888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 403001 | 459 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 501001 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 742 | 0 | 0 |
| 501002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 501005 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503001 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503005 | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 503007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CANADA | 222,579 | 55,500 | 70,781 | 4,489 | 60,660 | 693,444 | 18,079 | 12,346 | 76,390 | 3,435 | 8,140 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, POINT SOURCES

| Province | TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alberta | 608,878 | 6,386 | 118,267 | 5,505 | 0 | 18,417 | 0 | 0 | 30,243 | 60,708 | 709 | 249 | 152 | 66 | 148,126 | 157,123 |
| British Columbia | 128,086 | 10,780 | 13,892 | 775 | 0 | 117,778 | 0 | 0 | 494 | 34,777 | 1,354 | 159 | 266 | 19 | 22,902 | 25,792 |
| Manitoba | 523,255 | 13,259 | 2,864 | 117 | 0 | 3,589 | 0 | 0 | 1,556 | 28,794 | 602 | 153 | 55 | 28 | 8,190 | 8,551 |
| New Brunswick | 169,542 | 10,661 | 21,325 | 602 | 0 | 6,202 | 0 | 0 | 85 | 29,354 | 743 | 233 | 232 | 53 | 9,001 | 10,177 |
| Newfoundland | 25,183 | 1,387 | 2,134 | 44 | 0 | 263 | 0 | 0 | 0 | 87,892 | 508 | 178 | 1 | 0 | 1,967 | 2,196 |
| Nova Scotia | 171,197 | 7,864 | 35,332 | 1,059 | 0 | 15,358 | 0 | 0 | 369 | 54,647 | 483 | 250 | 238 | 389 | 10,470 | 12,102 |
| Ontario | 1,791,964 | 37,245 | 130,014 | 8,462 | 0 | 315,383 | 0 | 0 | 13,501 | 202,588 | 6,461 | 1,265 | 838 | 1,350 | 95,879 | 103,998 |
| Prince Edward | 2,191 | 129 | 478 | 10 | 0 | 38 | 0 | 0 | 0 | 167 | 0 | 0 | 0 | 0 | 9 | 10 |
| Quebec | 864,554 | 27,455 | 22,166 | 1,222 | 0 | 173,600 | 0 | 0 | 915 | 242,884 | 3,883 | 761 | 687 | 282 | 67,207 | 74,462 |
| Saskatchewan | 46,947 | 3,557 | 13,678 | 571 | 0 | 8,160 | 0 | 0 | 127 | 125,688 | 1,936 | 1,623 | 821 | 412 | 9,898 | 11,299 |
| Canada | 4,331,797 | 118,723 | 360,149 | 18,368 | NR | 658,788 | NR | NR | 47,290 | 867,499 | 16,680 | 4,870 | 3,289 | 2,599 | 373,648 | 405,710 |

| Province | METRIC TONS/YEAR | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alberta | 552,375 | 5,793 | 107,292 | 4,994 | 0 | 16,708 | 0 | 0 | 27,437 | 55,074 | 643 | 226 | 138 | 60 | 134,380 | 142,542 |
| British Columbia | 116,200 | 9,780 | 12,603 | 703 | 0 | 106,848 | 0 | 0 | 448 | 31,550 | 1,228 | 145 | 241 | 17 | 20,776 | 23,398 |
| Manitoba | 474,698 | 12,029 | 2,598 | 107 | 0 | 3,256 | 0 | 0 | 1,412 | 26,122 | 547 | 139 | 50 | 25 | 7,430 | 7,757 |
| New Brunswick | 153,809 | 9,672 | 19,346 | 546 | 0 | 5,626 | 0 | 0 | 77 | 26,630 | 674 | 211 | 211 | 48 | 8,165 | 9,232 |
| Newfoundland | 22,846 | 1,258 | 1,936 | 40 | 0 | 239 | 0 | 0 | 0 | 79,736 | 460 | 161 | 1 | 0 | 1,784 | 1,992 |
| Nova Scotia | 155,310 | 7,134 | 32,053 | 961 | 0 | 13,933 | 0 | 0 | 335 | 49,576 | 438 | 227 | 216 | 353 | 9,498 | 10,979 |
| Ontario | 1,625,674 | 33,789 | 117,949 | 7,677 | 0 | 286,116 | 0 | 0 | 12,248 | 183,788 | 5,861 | 1,147 | 760 | 1,225 | 86,982 | 94,347 |
| Prince Edward | 1,988 | 117 | 434 | 9 | 0 | 34 | 0 | 0 | 0 | 152 | 0 | 0 | 0 | 0 | 8 | 9 |
| Quebec | 784,325 | 24,907 | 20,109 | 1,109 | 0 | 157,490 | 0 | 0 | 830 | 220,345 | 3,523 | 690 | 623 | 255 | 60,971 | 67,552 |
| Saskatchewan | 42,590 | 3,227 | 12,409 | 518 | 0 | 7,403 | 0 | 0 | 115 | 114,024 | 1,757 | 1,472 | 745 | 374 | 8,979 | 10,250 |
| Canada | 3,929,816 | 107,706 | 326,728 | 16,663 | NR | 597,654 | NR | NR | 42,902 | 786,997 | 15,132 | 4,418 | 2,983 | 2,358 | 338,975 | 368,061 |

NR = NOT REPORTED

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, POINT SOURCES

THOUSAND MOLES/YEAR

| Province | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pent | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes | Benzene | Toluene | Xylene | Eth Benz | Aromatic | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alberta | 278,610 | 122,828 | 96,447 | 105,390 | 20,516 | 25,163 | 266 | 787,472 | 645,732 | 273,317 | 0 | 353,366 | 111,192 | 39,218 | 17,587 | 1,657 | 45,263 | 202,801 | 13,468 | 9,214 | 37,898 | 1,849 | 5,792 |
| Brit.Col. | 135,346 | 14,996 | 26,671 | 35,829 | 5,872 | 17,887 | 0 | 124,507 | 40,292 | 13,831 | 0 | 15,832 | 8,880 | 2,453 | 1,189 | 0 | 2,812 | 67,570 | 833 | 573 | 104 | 0 | 312 |
| Manitoba | 11,626 | 4,667 | 10,148 | 13,023 | 1,540 | 6,409 | 7 | 39,424 | 31,864 | 8,856 | 0 | 12,636 | 5,735 | 1,853 | 681 | 43 | 2,235 | 2,511 | 662 | 455 | 23 | 0 | 248 |
| New Brun. | 59,116 | 3,943 | 9,228 | 16,801 | 4,572 | 10,444 | 9 | 50,561 | 0 | 0 | 0 | 71 | 1,893 | 66 | 233 | 55 | 0 | 34,812 | 0 | 0 | 1,485 | 0 | 0 |
| Newfound. | 7,182 | 3,077 | 6,645 | 8,286 | 687 | 3,729 | 0 | 6,763 | 0 | 0 | 0 | 0 | 131 | 0 | 0 | 0 | 0 | 1,115 | 0 | 0 | 384 | 0 | [illegible] |
| Nova Scot | 76,375 | 8,524 | 18,654 | 25,273 | 4,086 | 13,234 | 38 | 44,682 | 1,004 | 8,107 | 0 | 316 | 1,630 | 166 | 1,002 | 236 | 0 | 42,694 | 0 | 0 | 633 | 0 | 0 |
| Ontario | 403,452 | 29,735 | 57,364 | 82,695 | 17,802 | 47,290 | 275 | 408,362 | 144,366 | 361,419 | 0 | 117,323 | 64,880 | 9,309 | 31,355 | 1,717 | 9,288 | 205,320 | 2,763 | 1,891 | 9,322 | 346 | 1,175 |
| Prince Ed | 64 | 0 | 0 | 23 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 131 | 0 | 0 | 45 | 0 | 0 |
| Quebec | 321,193 | 47,550 | 102,926 | 141,208 | 21,877 | 74,086 | 0 | 264,299 | 15,224 | 165,741 | 0 | 17,828 | 27,400 | 1,926 | 15,404 | 0 | 1,034 | 122,475 | 345 | 207 | 26,418 | 1,241 | 620 |
| Saskatch. | 53,186 | 13,891 | 29,141 | 35,099 | 2,976 | 16,136 | 125 | 34,585 | 1,090 | 155 | 0 | 1,182 | 838 | 509 | 3,329 | 781 | 29 | 14,016 | 9 | 6 | 75 | 0 | 5 |
| Canada | 1,346,149 | 249,211 | 357,224 | 463,625 | 79,927 | 214,379 | 720 | 1,760,662 | 879,572 | 831,425 | NR | 518,552 | 222,579 | 55,500 | 70,781 | 4,489 | 60,660 | 693,444 | 18,079 | 12,346 | 76,390 | 3,435 | 8,1[illegible] |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS, AREA & POINT SOURCES

| | TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alberta | 660,788 | 7,677 | 447,652 | 37,913 | 0 | 3,023,686 | 0 | 0 | 83,323 | 8,828,141 | 709 | 249 | 152 | 66 | 685,711 | 898,962 |
| British Columbia | 170,640 | 13,903 | 197,116 | 20,060 | 0 | 2,153,713 | 0 | 0 | 7,012 | 1,967,089 | 1,354 | 159 | 266 | 19 | 283,067 | 528,424 |
| Manitoba | 533,199 | 13,790 | 91,581 | 10,811 | 0 | 1,603,510 | 0 | 0 | 21,011 | 3,142,219 | 602 | 153 | 55 | 28 | 233,681 | 325,091 |
| New Brunswick | 223,053 | 14,963 | 55,120 | 3,640 | 0 | 347,965 | 0 | 0 | 1,024 | 415,749 | 743 | 233 | 232 | 53 | 51,010 | 114,009 |
| Newfoundland | 65,635 | 4,604 | 33,220 | 2,710 | 0 | 197,323 | 0 | 0 | 123 | 280,665 | 508 | 178 | 1 | 0 | 28,948 | 78,892 |
| Nova Scotia | 212,343 | 11,094 | 78,375 | 5,101 | 0 | 393,785 | 0 | 0 | 1,646 | 763,019 | 483 | 250 | 238 | 389 | 73,664 | 149,945 |
| Ontario | 1,954,125 | 45,947 | 517,732 | 46,017 | 0 | 4,424,186 | 0 | 0 | 46,260 | 6,604,382 | 6,461 | 1,265 | 838 | 1,350 | 733,251 | 1,482,757 |
| Prince Edward | 4,973 | 343 | 5,624 | 506 | 0 | 57,947 | 0 | 0 | 832 | 41,629 | 0 | 0 | 0 | 0 | 6,501 | 17,202 |
| Quebec | 1,210,291 | 50,699 | 297,214 | 24,785 | 0 | 2,409,711 | 0 | 0 | 16,564 | 2,484,937 | 3,883 | 761 | 687 | 282 | 390,108 | 946,493 |
| Saskatchewan | 60,125 | 4,250 | 155,082 | 19,135 | 0 | 3,373,897 | 0 | 0 | 31,879 | 6,980,762 | 1,936 | 1,623 | 821 | 412 | 505,957 | 593,482 |
| Canada | 5,095,172 | 167,270 | 1,878,716 | 170,677 | NR | 17,985,723 | NR | NR | 209,674 | 31,508,592 | 16,680 | 4,870 | 3,289 | 2,599 | 2,991,898 | 5,135,257 |

| | METRIC TONS/YEAR | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Province | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Alberta | 599,467 | 6,965 | 406,105 | 34,394 | 0 | 2,743,042 | 0 | 0 | 75,590 | 8,008,756 | 643 | 226 | 138 | 60 | 622,070 | 815,527 |
| British Columbia | 154,804 | 12,613 | 178,821 | 18,198 | 0 | 1,953,818 | 0 | 0 | 6,361 | 1,784,514 | 1,228 | 145 | 241 | 17 | 256,794 | 479,378 |
| Manitoba | 483,719 | 12,510 | 83,081 | 9,807 | 0 | 1,454,680 | 0 | 0 | 19,061 | 2,850,574 | 547 | 139 | 50 | 25 | 211,992 | 294,917 |
| New Brunswick | 202,353 | 13,574 | 50,004 | 3,302 | 0 | 315,669 | 0 | 0 | 929 | 377,162 | 674 | 211 | 211 | 48 | 46,276 | 103,427 |
| Newfoundland | 59,544 | 4,177 | 30,137 | 2,458 | 0 | 179,008 | 0 | 0 | 112 | 254,617 | 460 | 161 | 1 | 0 | 26,261 | 71,570 |
| Nova Scotia | 192,637 | 10,064 | 71,101 | 4,628 | 0 | 357,236 | 0 | 0 | 1,493 | 692,200 | 438 | 227 | 216 | 353 | 66,827 | 136,028 |
| Ontario | 1,772,784 | 41,683 | 469,681 | 41,746 | 0 | 4,013,560 | 0 | 0 | 41,966 | 5,991,398 | 5,861 | 1,147 | 760 | 1,225 | 665,195 | 1,345,137 |
| Prince Edward | 4,511 | 311 | 5,102 | 459 | 0 | 52,569 | 0 | 0 | 755 | 37,765 | 0 | 0 | 0 | 0 | 5,898 | 15,605 |
| Quebec | 1,097,972 | 45,994 | 269,629 | 22,484 | 0 | 2,186,056 | 0 | 0 | 15,027 | 2,254,301 | 3,523 | 690 | 623 | 255 | 353,901 | 858,645 |
| Saskatchewan | 54,545 | 3,856 | 140,688 | 17,359 | 0 | 3,060,748 | 0 | 0 | 28,920 | 6,332,843 | 1,757 | 1,472 | 745 | 374 | 458,996 | 538,398 |
| Canada | 4,622,338 | 151,747 | 1,704,349 | 154,836 | NR | 16,316,385 | NR | NR | 190,214 | 28,584,129 | 15,132 | 4,418 | 2,983 | 2,358 | 2,714,211 | 4,658,634 |

NR = NOT REPORTED

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

THOUSAND MOLES/YEAR

| Province | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pen | Alkanes | Ethylene | Propylene | Iso-Buten | Alkenes | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alberta | 11,767,688 | 244,099 | 353,461 | 497,510 | 129,735 | 188,312 | 11,632 | 3,153,143 | 2,611,986 | 413,931 | 3,606 | 1,700,819 | 168,267 | 207,056 | 357,078 | 79,550 | 98,130 | 455,622 | 88,824 | 23,656 | 54,432 | 22,228 | 8,027 |
| Brit.Col. | 13,744,136 | 100,764 | 78,290 | 224,948 | 44,684 | 57,496 | 8,916 | 1,393,282 | 495,673 | 170,165 | 2,105 | 386,827 | 49,748 | 159,900 | 282,269 | 63,336 | 50,425 | 290,111 | 44,880 | 20,464 | 56,317 | 35,850 | 3,108 |
| Manitoba | 5,143,306 | 25,654 | 77,185 | 117,894 | 57,563 | 53,469 | 100 | 1,145,443 | 1,139,139 | 82,670 | 1,122 | 716,521 | 21,680 | 55,092 | 19,652 | 3,637 | 23,338 | 61,738 | 24,135 | 4,507 | 8,537 | 9,589 | 1,294 |
| New Brun. | 3,540,911 | 19,213 | 24,317 | 68,831 | 13,490 | 24,315 | 266 | 286,046 | 65,434 | 30,142 | 305 | 49,121 | 9,968 | 27,597 | 16,514 | 3,458 | 9,310 | 84,721 | 6,381 | 4,249 | 8,719 | 5,738 | 683 |
| Newfound. | 2,816,537 | 10,116 | 10,341 | 37,951 | 6,734 | 10,099 | 48 | 167,312 | 42,847 | 20,811 | 273 | 30,369 | 5,649 | 18,777 | 7,577 | 1,672 | 6,262 | 58,197 | 5,697 | 2,107 | 4,911 | 4,344 | 545 |
| Nova Scot | 4,270,917 | 32,081 | 35,417 | 86,577 | 13,651 | 26,381 | 2,329 | 362,041 | 81,958 | 45,396 | 440 | 75,160 | 12,438 | 44,940 | 72,679 | 16,943 | 10,030 | 109,845 | 9,207 | 1,578 | 7,533 | 7,445 | 831 |
| Ontario | 42,288,130 | 141,549 | 165,843 | 592,743 | 155,139 | 181,961 | 439 | 4,035,725 | 1,849,973 | 731,441 | 3,528 | 1,275,151 | 165,690 | 352,940 | 154,512 | 25,018 | 109,588 | 808,285 | 76,953 | 28,863 | 157,779 | 135,767 | 10,331 |
| Prince Ed | 604,107 | 1,756 | 669 | 6,875 | 1,302 | 1,382 | 28 | 39,333 | 10,093 | 5,517 | 46 | 7,379 | 1,449 | 5,074 | 2,302 | 504 | 1,414 | 8,326 | 967 | 300 | 720 | 1,034 | 117 |
| Quebec | 31,357,047 | 122,510 | 143,555 | 473,749 | 91,040 | 146,480 | 248 | 2,221,058 | 536,115 | 398,776 | 2,126 | 396,238 | 92,840 | 223,733 | 96,794 | 17,256 | 62,645 | 668,593 | 44,986 | 16,021 | 119,173 | 78,463 | 7,211 |
| Saskatch. | 4,856,581 | 61,512 | 206,981 | 232,071 | 130,606 | 124,927 | 3,789 | 2,300,349 | 2,601,774 | 103,137 | 1,345 | 1,680,370 | 19,920 | 77,070 | 120,057 | 26,729 | 27,304 | 80,939 | 28,114 | 4,067 | 6,649 | 9,256 | 955 |
| Canada | 120,389,361 | 759,253 | 1,096,057 | 2,339,149 | 643,943 | 814,803 | 27,796 | 15,103,733 | 9,434,992 | 2,001,986 | 14,897 | 6,317,955 | 547,649 | 1,172,180 | 1,129,434 | 238,103 | 398,445 | 2,626,378 | 330,143 | 105,814 | 424,770 | 309,714 | 33,102 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN & U.S. EMISSIONS, AREA & POINT SOURCES

| | | | | | | | TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Canada | 5,095,172 | 167,270 | 1,878,716 | 170,677 | NR | 17,985,723 | NR | NR | 209,674 | 31,508,592 | 16,680 | 4,870 | 3,289 | 2,599 | 2,991,898 | 5,135,257 |
| Contig. U.S. | 26,954,136 | 975,608 | 20,877,086 | 1,475,151 | 31,732 | 99,308,937 | 526,524 | 115,434 | 838,664 | 42,617,370 | 113,808 | 32,025 | 12,975 | 15,474 | 23,164,547 | 24,977,459 |
| Total | 32,049,308 | 1,142,878 | 22,755,802 | 1,645,828 | 31,732 | 117,294,660 | 526,524 | 115,434 | 1,048,338 | 74,125,962 | 130,487 | 36,895 | 16,263 | 18,073 | 26,156,446 | 30,112,716 |

| | | | | | | | METRIC TONS/YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | SO2 | SO4 | NO | NO2 | Pb | CO | HCl | HF | NH3 | TSP | Ca | Mg | Na | K | VOC | THC |
| Canada | 4,622,338 | 151,747 | 1,704,349 | 154,836 | NR | 16,316,385 | NR | NR | 190,214 | 28,584,129 | 15,132 | 4,418 | 2,983 | 2,358 | 2,714,211 | 4,658,634 |
| Contig. U.S. | 24,452,809 | 885,069 | 18,939,536 | 1,338,240 | 28,787 | 90,091,713 | 477,664 | 104,722 | 760,828 | 38,661,905 | 103,247 | 29,053 | 11,771 | 14,038 | 21,014,593 | 22,659,252 |
| Total | 29,075,147 | 1,036,816 | 20,643,885 | 1,493,076 | 28,787 | 106,408,098 | 477,664 | 104,722 | 951,042 | 67,246,034 | 118,378 | 33,471 | 14,754 | 16,396 | 23,728,804 | 27,317,885 |

NR = NOT REPORTED

1980 NAPAP 5.2 EMISSIONS INVENTORY - ANNUAL CANADIAN & U.S. EMISSIONS OF HYDROCARBON SPECIES, AREA & POINT SOURCES

| | THOUSAND MOLES/YEAR | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Methane | Ethane | Propane | Butane | Iso-Butane | Pentane | Iso-Pentane | Alkanes | Ethylene | Propylene | Iso-Butene | Alkenes |
| Canada | 120,389,361 | 759,253 | 1,096,057 | 2,339,149 | 643,943 | 814,803 | 27,796 | 15,103,733 | 9,434,992 | 2,001,986 | 14,897 | 6,317,955 |
| Contig. U.S. | 91,994,146 | 6,698,261 | 4,079,718 | 15,972,045 | 3,301,153 | 3,294,293 | 340,374 | 134,447,565 | 41,611,730 | 15,457,664 | 103,241 | 28,722,513 |
| Total | 212,383,507 | 7,457,514 | 5,175,775 | 18,311,194 | 3,945,097 | 4,109,096 | 368,171 | 149,551,298 | 51,046,722 | 17,459,650 | 118,138 | 35,040,468 |

| | THOUSAND MOLES/YEAR | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Benzene | Toluene | Xylene | Eth Benz | Aromatics | Formaldeh | Acetaldeh | Aldeh | Acetone | Ketones | Org Acid |
| Canada | 547,649 | 1,172,180 | 1,129,434 | 238,103 | 398,445 | 2,626,378 | 330,143 | 105,814 | 424,770 | 309,714 | 33,100 |
| Contig. U.S. | 5,492,770 | 16,492,428 | 13,762,475 | 2,870,820 | 4,011,537 | 19,199,592 | 2,247,947 | 816,293 | 7,253,977 | 4,376,829 | 1,594,637 |
| Total | 6,040,419 | 17,664,608 | 14,891,909 | 3,108,923 | 4,409,982 | 21,825,970 | 2,578,090 | 922,107 | 7,678,747 | 4,686,543 | 1,627,737 |

For conversion of hydrocarbon classes to tons/year, see discussion in Appendix E.

# APPENDIX B

# DEFAULT PARAMETER TABLES AND SAROAD LISTINGS

Tables B-1 through B-5 list default values for control efficiencies, ash and sulfur contents, and heat values utilized in the generation of the Version 5.0 NAPAP Emissions Inventory. A detailed description of the circumstances under which these values were applied can be found in Section 3. Table B-6 is a listing of the SAROAD codes for pollutants in the Version 5.0 and 5.2 inventories.

## TABLE B-1. ASSUMED CONTROL EFFICIENCIES[a]

AMMONIA

| Control equipment code | Removal efficiency (%) |
|---|---|
| 001, 002, 003, 053 (wet scrubbers) (for coal combustion only) | 30.0 |
| 019, 020, 021, 022, 023 (afterburners) | 99.9 |
| 034-040 and 067-071 (FGD) | 90.0 |

SULFATE

| Control equipment code | Removal efficiency (%) |
|---|---|
| 001, 002, 003, 053 | 20.0 |
| 010, 011, 012 (ESPs) | 20.0 |
| 016, 017, 018 (fabric filters) | 30.0 |
| 034-040 and 067-071 (FGD) | 35.0 |

[a] For control devices in series, credit was given for the most efficient device only. Removal efficiencies for all other control devices assumed to be zero.

## TABLE B-2. ASSUMED CONTROL EFFICIENCIES FOR HCl AND HF[a]

HCl AND HF - COAL COMBUSTION

| Control equipment code | Removal efficiency (%) |
|---|---|
| 001 (wet scrubber-high efficiency) | 80 |
| 002 (wet scrubber-medium efficiency) | 75 |
| 003 (wet scrubber-low efficiency) | 70 |
| 013, 028, 034, 035, 036, 052, 067, 068, 069, 070 (other types of scrubbers, steam or water injection, or spray tower) | 50 |
| 042 (wet lime injection) | 40 |

HCl - INDUSTRIAL PROCESSES

| Control equipment code | Removal efficiency (%) |
|---|---|
| 013 (gas scrubber) | 93 |
| 001 (wet scrubber-high efficiency | 90 |
| 002 (wet scrubber-medium efficiency) | 85 |
| 003 (wet scrubber-low efficiency) | 80 |

HF - INDUSTRIAL PROCESSES

| Process | Control equipment code | Removal efficiency (%) |
|---|---|---|
| HF Manufacturing | 013 | 99 |
| Phosphoric Acid Manufacturing | 001, 002, 003, 013 | 98 |
| Triple Super Phosphate Manufacturing | 001 | 99 |
| | 002 | 95 |
| | 003 | 90 |
| | 013 | 95 |
| | 052 (spray tower) | 95 |
| | 053 (venturi scrubber) | 95 |
| Diammonium Phosphate Mfg.--Dryer/cooler | 013, 052, 053 | 90 |
| | 050 (packed gas absorption column) | 90 |
| Ammoniator/granulator | 013, 050, 052, 053 | 83 |
| Primary Aluminum Producton--Prebake reduction cell | 040 (alkalized alumina) | 99 |
| | 071 (fluid bed dry scrubber) | 99 |
| | 052 | 94 |
| | 050 | 71 |
| Horizontal soderberg stud Cell | 040, 071 | 96 |
| | 001 | 99 |
| | 002 | 95 |
| | 003 | 90 |
| | 052 | 62 |
| Primary Aluminum Production--Vertical soderberg stud Cell and HSS and VSS Fugitive emissions | 040, 052, 053, 071 | 99 |
| | 001 | 97 |
| | 002 | 95 |
| | 003 | 93 |
| Anode baking furnace | 040, 071 | 99 |
| | 052 | 96 |
| Prebake fugitive emissions | 040, 071 | 99 |
| | 052 | 94 |
| | 050 | 71 |

[a] For control devices in series, credit was given for the most efficient device only. Removal efficiencies for all other control devices assumed to be zero.

TABLE B-3. DEFAULT ASH AND SULFUR CONTENTS

| SCC | Ash content | Sulfur content |
|---|---|---|
| 10X001XX | 10.0 | 0.70 |
| 10X002XX | 10.0 | 2.00 |
| 10X003XX | 10.0 | 1.00 |
| 10X004XX | NR | 1.50 |
| 10X005XX | NR | 0.30 |
| 10X007XX | NR | 0.15 |
| 10X008XX | 10.0 | 0.80 |
| 10X010XX | NR | 0.15 |
| 10500110 | NR | 0.15 |
| 20X001XX | NR | 0.30 |
| 20X004XX | NR | 0.30 |
| 30500312 | NR | 0.30 |
| 30500313 | 10.0 | 0.70 |
| 30500315 | NR | 0.30 |
| 30500316 | 10.0 | 0.70 |
| 30600101 | NR | 0.30 |
| 30600102 | NR | 0.15 |
| 30600103 | NR | 0.30 |
| 30600104 | NR | 0.15 |
| 30600106 | NR | 0.15 |
| 30600107 | NR | 0.15 |
| 390001XX | 10.0 | 0.70 |
| 39000201 | 10.0 | 2.00 |
| 390003XX | 10.0 | 1.00 |
| 39000402 | NR | 1.50 |
| 39000502 | NR | 0.30 |
| 390007XX | NR | 0.15 |
| 390008XX | 10.0 | 0.80 |
| 390010XX | NR | 0.15 |

NR = Not required for emission calculation.

## TABLE B-4. DEFAULT CONTROL EFFICIENCIES

| Control equipment code | Particulates | Lead | $SO_x$ | $NO_x$ | VOC | CO |
|---|---|---|---|---|---|---|
| 001 | 97.5 | 97.5 | 90.0 | -- | -- | -- |
| 002 | 87.5 | 87.5 | 70.0 | -- | -- | -- |
| 003 | 60.0 | 60.0 | 40.0 | -- | -- | -- |
| 006 | 50.0 | 50.0 | -- | -- | -- | -- |
| 006 | 50.0 | 50.0 | -- | -- | -- | -- |
| 007 | 97.5 | 97.5 | -- | -- | -- | -- |
| 008 | 87.5 | 87.5 | -- | -- | -- | -- |
| 009 | 55.0 | 55.0 | -- | -- | -- | -- |
| 010 | 97.5 | 97.5 | -- | -- | -- | -- |
| 011 | 87.5 | 87.5 | -- | -- | -- | -- |
| 012 | 65.0 | 65.0 | -- | -- | -- | -- |
| 013 | 80.0 | 80.0 | 25.0 | 80.0 | 70.0 | -- |
| 014 | 80.0 | 80.0 | -- | -- | -- | -- |
| 015 | 70.0 | 70.0 | -- | -- | -- | -- |
| 016 | 99.0 | 99.0 | -- | -- | -- | -- |
| 017 | 99.0 | 99.0 | -- | -- | -- | -- |
| 018 | 99.0 | 99.0 | -- | -- | -- | -- |
| 019 | 90.0 | 90.0 | -- | -- | 95.0 | -- |
| 020 | 90.0 | 90.0 | -- | -- | 95.0 | -- |
| 021 | 60.0 | 60.0 | -- | -- | 99.0 | -- |
| 022 | 60.0 | 60.0 | -- | -- | 99.0 | -- |
| 023 | 85.0 | 85.0 | -- | -- | 90.0 | -- |
| 039 | -- | -- | 80.0 | -- | -- | -- |
| 040 | -- | -- | 80.0 | -- | -- | -- |
| 043 | -- | -- | 80.0 | -- | -- | -- |
| 045 | -- | -- | 90.0 | -- | -- | -- |
| 046 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| 047 | -- | -- | -- | -- | 80.0 | -- |
| 050 | 90.0 | 90.0 | 81.0 | 80.0 | 50.0 | -- |
| 052 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | -- |
| 053 | 95.0 | 95.0 | 80.0 | 80.0 | 80.0 | -- |
| 060 | -- | -- | -- | -- | 95.0 | -- |

TABLE B-5. VALID HEAT VALUE RANGES FOR THE NAPAP EMISSIONS INVENTORY

| Fuel | Acceptable range | Default |
|---|---|---|
| Anthracite coal | 20-30 MMBtu/ton | 25 MMBtu/ton |
| Bituminous coal | 20-30 MMBtu/ton | 25 MMBtu/ton |
| Lignite | 10-20 MMBtu/ton | 16 MMBtu/ton |
| Residual oil | 130-155 x $10^3$ Btu/gal | 150 x $10^3$ Btu/gal |
| Distillate oil | 120-155 x $10^3$ Btu/gal | 140 x $10^3$ Btu/gal |
| Natural gas | 800-1,200 Btu/$ft^3$ | 1,000 Btu/$ft^3$ |

TABLE B-6. 1980 NAPAP EMISSIONS INVENTORY VERSION 5.0 AND 5.2 POLLUTANT SAROAD CODE LISTING

| POLLUTANT | SAROAD CODE |
|---|---|
| SO2 | 42401 |
| SO4 | 12403 |
| TSP: | 11101 |
| - Ca | 12111 |
| - Mg | 12140 |
| - K | 12180 |
| - Na | 12184 |
| Pb | 12128 |
| CO | 42101 |
| HCl (Hydrogen Chloride) | 42302 |
| HF (Hydrogen Fluoride) | 42303 |
| NOX: | 42602 |
| - NO | 42601 |
| - NO2 | 42602 |
| NH3 | 42604 |
| VOC | 43104 |
| THC (Total Hydrocarbons): | 43101 |
| - Methane | 43201 |
| - Ethane | 43202 |
| - Ethylene | 43203 |
| - Propane | 43204 |
| - Propylene | 43205 |
| - N-butane | 43212 |
| - Isobutane | 43214 |
| - Isobutene | 43215 |
| - Trans-2-butene | 43216 |
| - Pentane | 43220 |
| - Isopentane | 43221 |
| - 2,3-dimethylbutane | 43244 |
| - Other alkenes | 43298 |
| - Other alkanes | 43299 |
| - Formic acid | 43403 |
| - Acetic acid | 43404 |
| - Other organic acids | 43499 |
| - Formaldehyde | 43502 |
| - Acetaldehyde | 43503 |
| - Propionaldehyde | 43504 |
| - Acetone | 43551 |
| - Other ketones | 43598 |
| - Other aldehydes | 43599 |
| - Xylene | 45102 |
| - Benzene | 45201 |
| - Toluene | 45202 |
| - Ethylbenzene | 45203 |
| - Other aromatics | 45999 |

# APPENDIX C

## FIGURES DEPICTING UNITED STATES AREA SOURCE TEMPORAL ALLOCATION FACTORS

The following pages illustrate temporal allocation patterns by U.S. area source SCC. Where allocation patterns vary from state to state, these figures represent national mean allocation values. A complete description of the application of these factors is presented in Section 6.

Figure C-1 depicts relative values of seasonal/daily temporal allocation factors for the 12 temporal scenarios available under Version 5.2. Vertical bars are comprised of asterisks, where each asterisk corresponds to roughly 1/20 percent of apportioned annual emissions for the respective SCC. Factors sum to 100 percent via the equation:

$$\sum_{\text{season}=1}^{4} \left(\begin{matrix}65\ \text{x}\\ \text{weekday factor}\end{matrix}\right) + \left(\begin{matrix}13\ \text{x}\\ \text{Saturday factor}\end{matrix}\right) + \left(\begin{matrix}13\ \text{x}\\ \text{Sunday factor}\end{matrix}\right) = 1.0$$

That is, weekday emissions are weighted by a factor of 5, since there are five times as many weekdays in a season as Saturdays or Sundays.

Figures C-2 through C-4 represent average hourly emissions allocations over the four seasons for weekdays, Saturdays, and Sundays, respectively. Each asterisk along the vertical axis represents approximately 1/2 percent of apportioned emissions for the specified day type. The x-axis represents hours from 1 to 24, adjusted to local time.

The real value of these temporal allocation patterns is not, however, in the absolute amount of emissions represented; the patterns serve as valuable qualitative quality assurance checks of the temporal allocation factors.

SEASONAL/DAILY MEANS

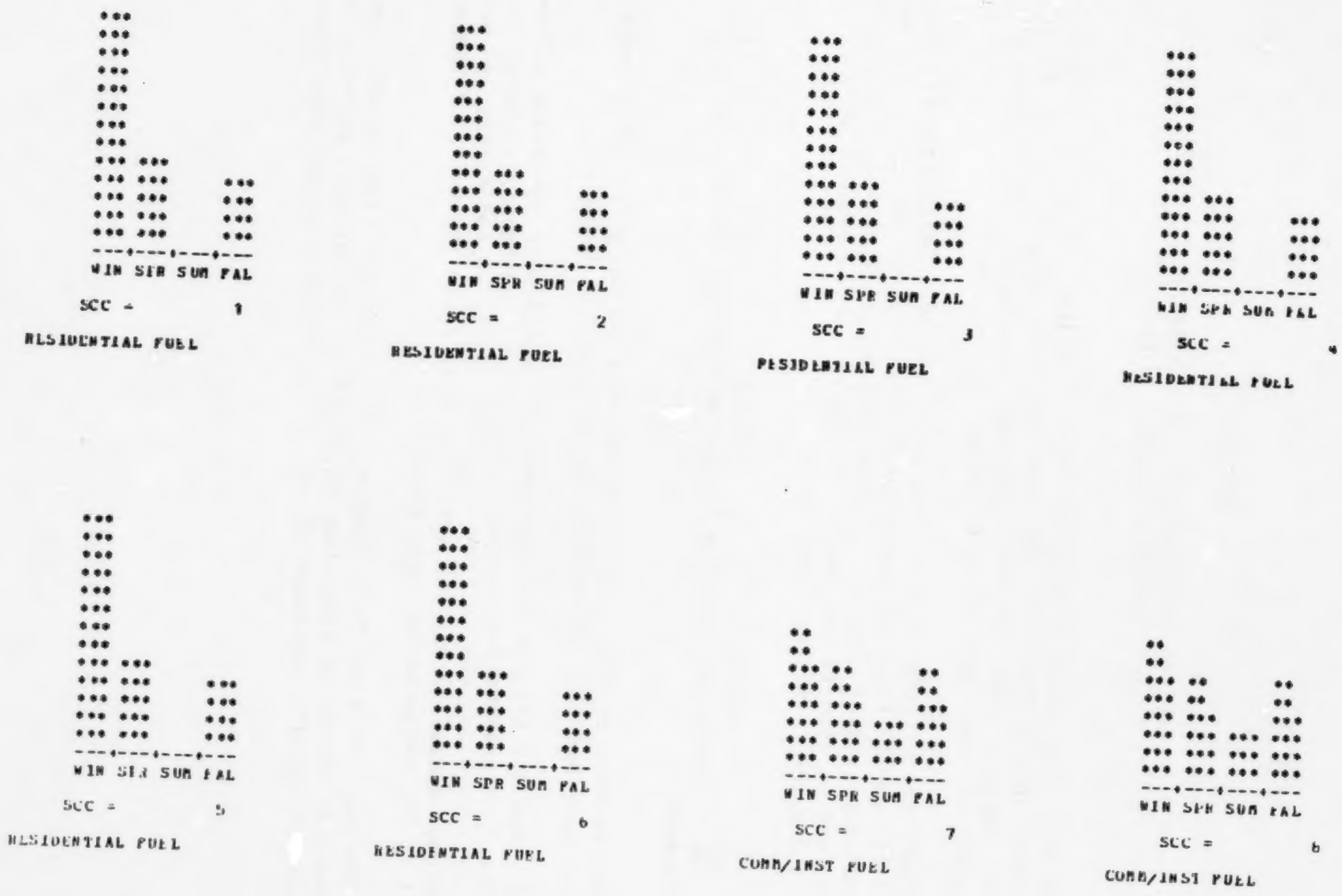
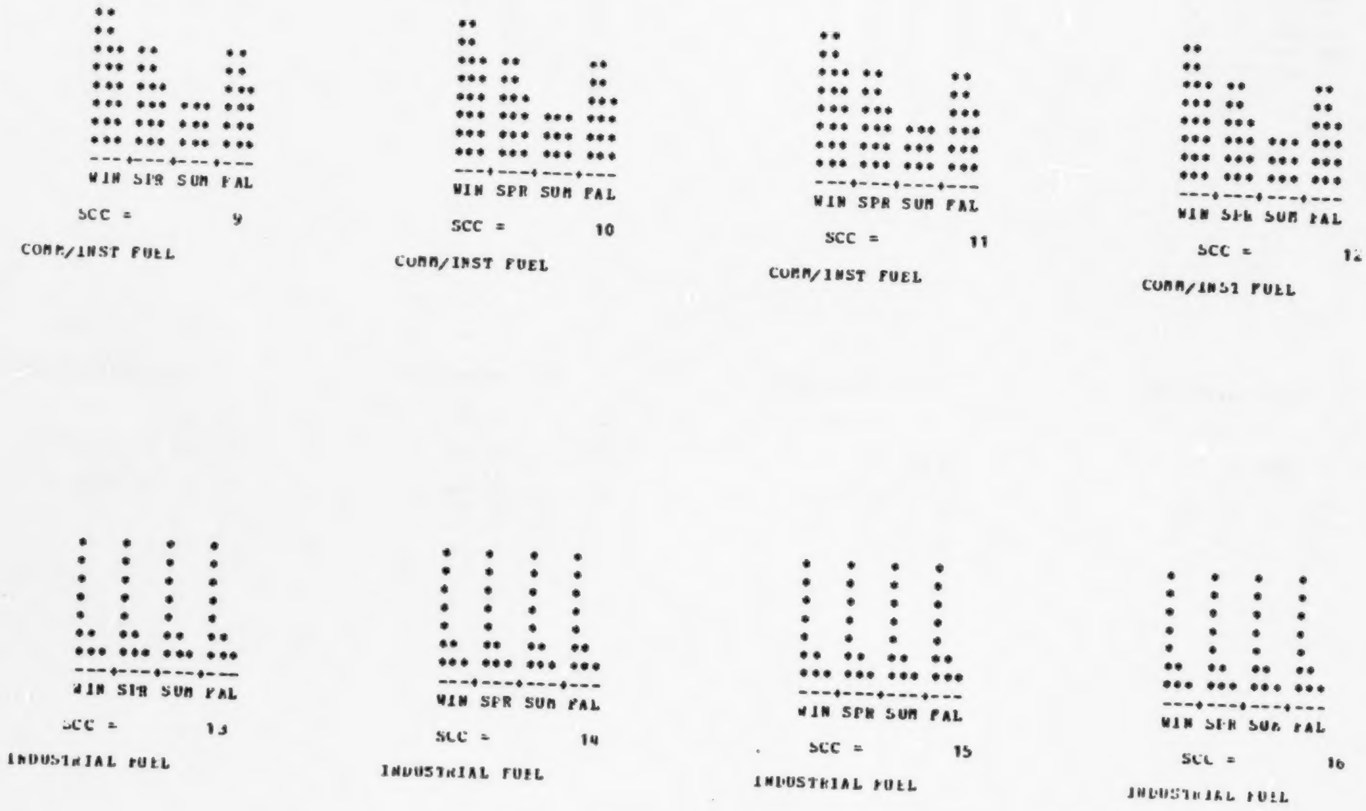


Figure C-1. Seasonal/daily emissions allocation patterns by area source category.



SCC = 9
COMM/INST FUEL

SCC = 10
COMM/INST FUEL

SCC = 11
COMM/INST FUEL

SCC = 12
COMM/INST FUEL

SCC = 13
INDUSTRIAL FUEL

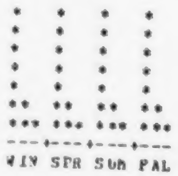
SCC = 14
INDUSTRIAL FUEL

SCC = 15
INDUSTRIAL FUEL

SCC = 16
INDUSTRIAL FUEL

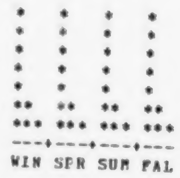
Figure C-1. (continued)

SEASONAL/DAILY MEANS



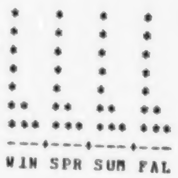
SCC = 17

INDUSTRIAL FUEL



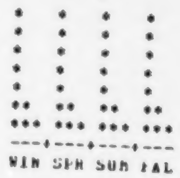
SCC = 18

INDUSTRIAL FUEL



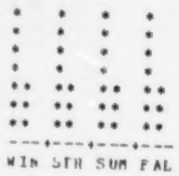
SCC = 19

INDUSTRIAL FUEL



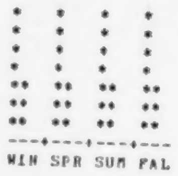
SCC = 20

INDUSTRIAL FUEL



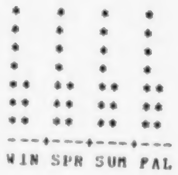
SCC = 21

ON-SITE INCINERATION



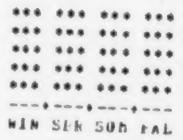
SCC = 22

ON-SITE INCINERATION



SCC = 23

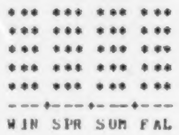
ON-SITE INCINERATION



SCC = 24

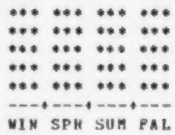
OPEN BURNING

Figure C-1. (continued)



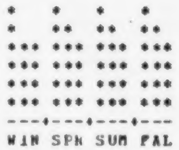
SCC = 25

OPEN BURNING



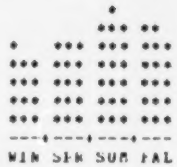
SCC = 26

OPEN BURNING



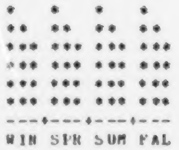
SCC = 27

LD GAS VHCLS



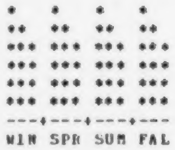
SCC = 28

LD GAS VHCLS



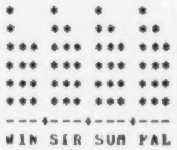
SCC = 29

LD GAS VHCLS



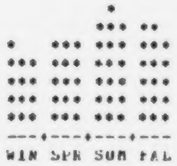
SCC = 30

LD GAS VHCLS



SCC = 31

MD GAS VHCLS

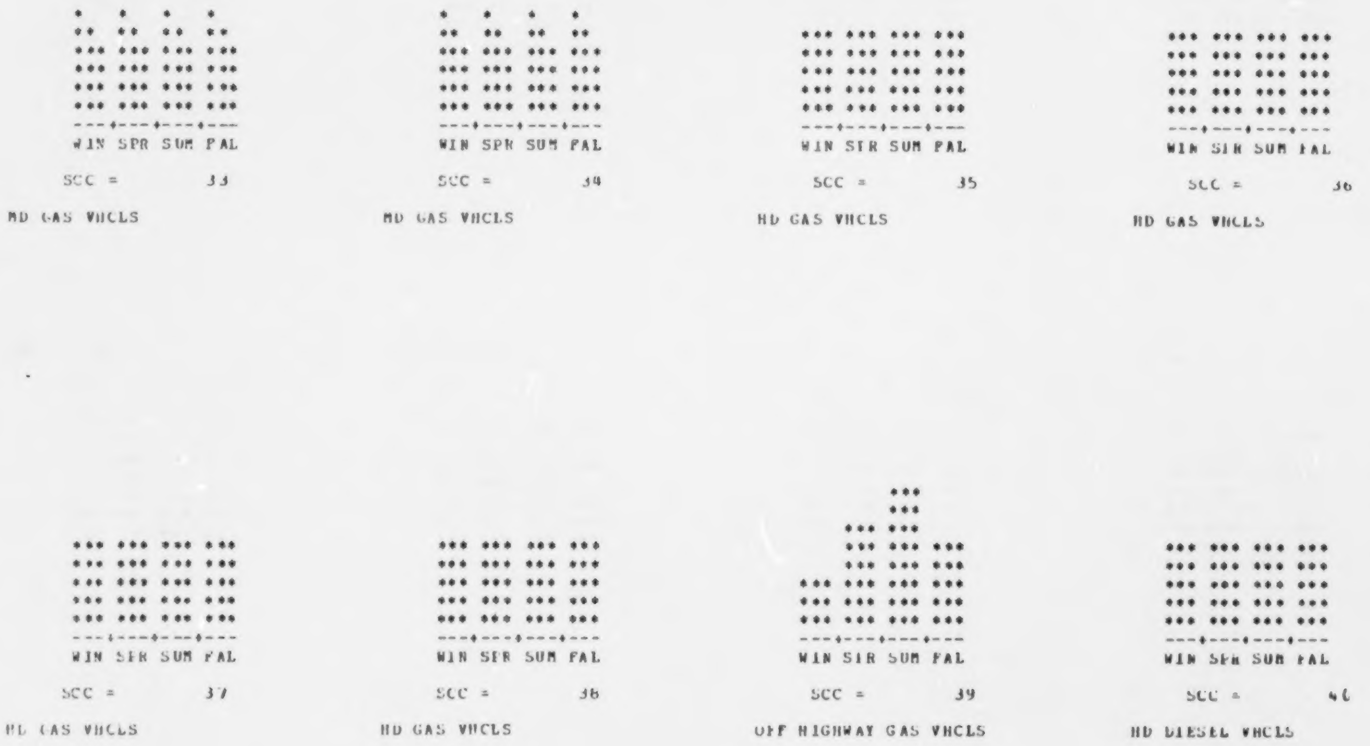


SCC = 32

MD GAS VHCLS

Figure C-1. (continued)

SEASONAL/DAILY MEANS



SCC = 33
HD GAS VHCLS

SCC = 34
HD GAS VHCLS

SCC = 35
HD GAS VHCLS

SCC = 36
HD GAS VHCLS

SCC = 37
HD GAS VHCLS

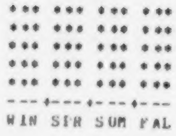
SCC = 38
HD GAS VHCLS

SCC = 39
OFF HIGHWAY GAS VHCLS

SCC = 40
HD DIESEL VHCLS

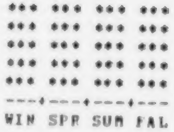
Figure C-1. (continued)

SEASONAL/DAILY MEANS



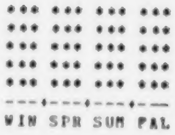
SCC = 41

HD DIESEL VHCLS



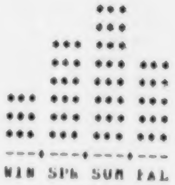
SCC = 42

HD DIESEL VHCLS



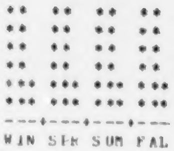
SCC = 43

HD DIESEL VHCLS



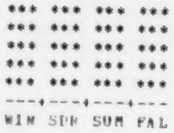
SCC = 44

OFF HIGHWAY DIESEL VHCLS



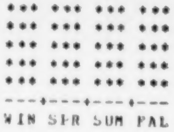
SCC = 45

RAILROAD LOCOMOTIVES



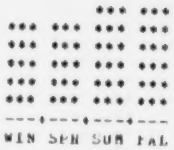
SCC = 46

LTO'S - MILITARY



SCC = 47

LTO'S - CIVIL



SCC = 48

LTO'S - COMMERCIAL

Figure C-1. (continued)

```
SEASONAL/DAILY MEANS

*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC -          49

VESSELS
```

```
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          50

VESSELS
```

```
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          51

VESSELS
```

```
         **
         **
         **
         **
         **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     **  **   **
     ** ***   **
    *** ***  ***
 ** *** ***  ***
 ** *** ***  ***
---+---+---+---
WIN SPR SUM FAL

SCC =          52

VESSELS
```

```
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          54

GAS MARKETED
```

```
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          55

UNPAVED ROAD TRAVEL
```

```
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          56

UNPAVED AIRSTRIP LTO'S
```

```
        ***
        ***
        *** ***
        *** ***
        *** ***
        *** ***
        *** ***
        *** ***
        *** ***
        *** ***
*** *** *** ***
---+---+---+---
WIN SPR SUM FAL

SCC =          60

FOREST WILD FIRES
```

Figure C-1. (continued)

SEASONAL/DAILY MEANS

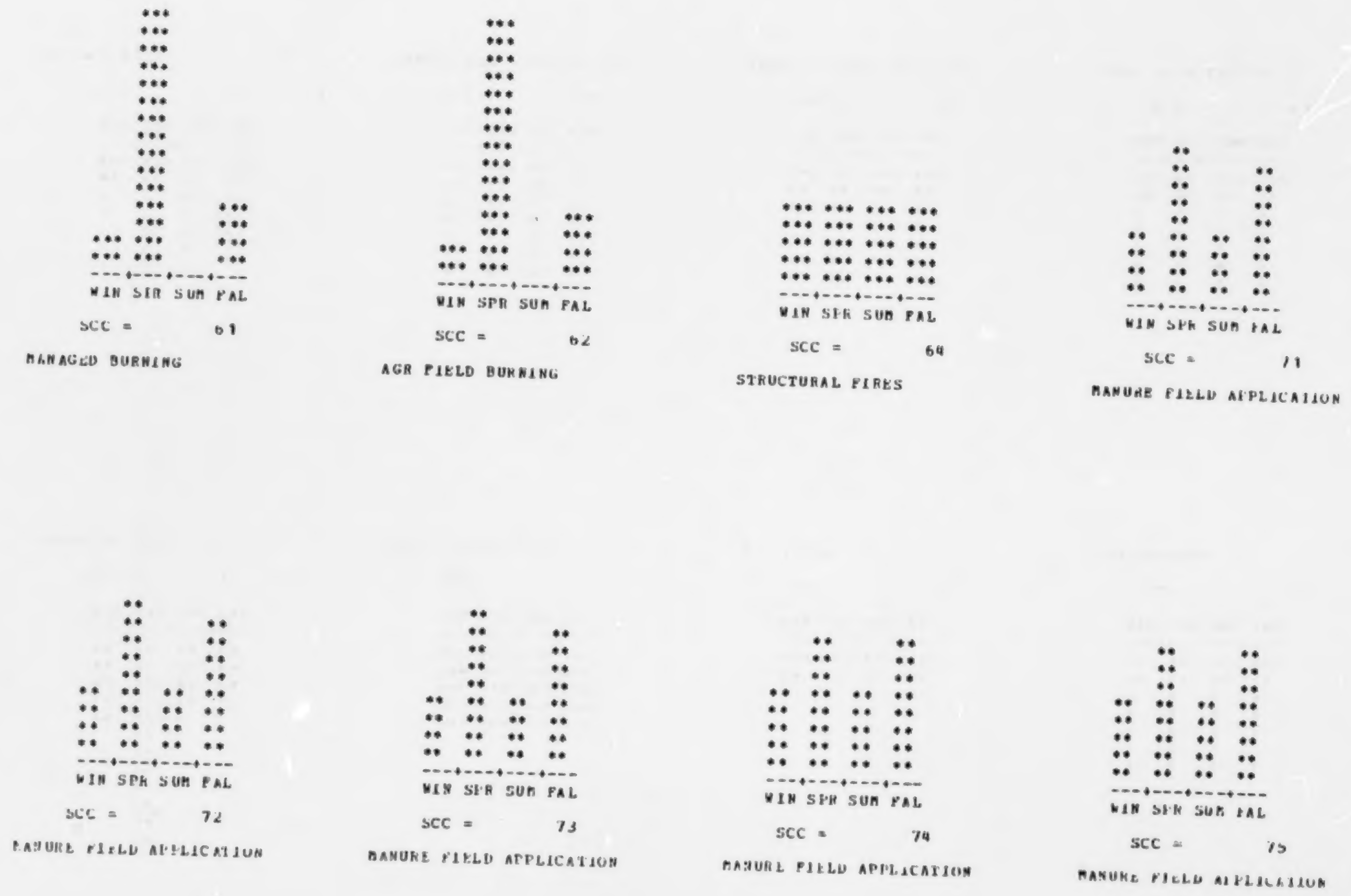


Figure C-1. (continued)

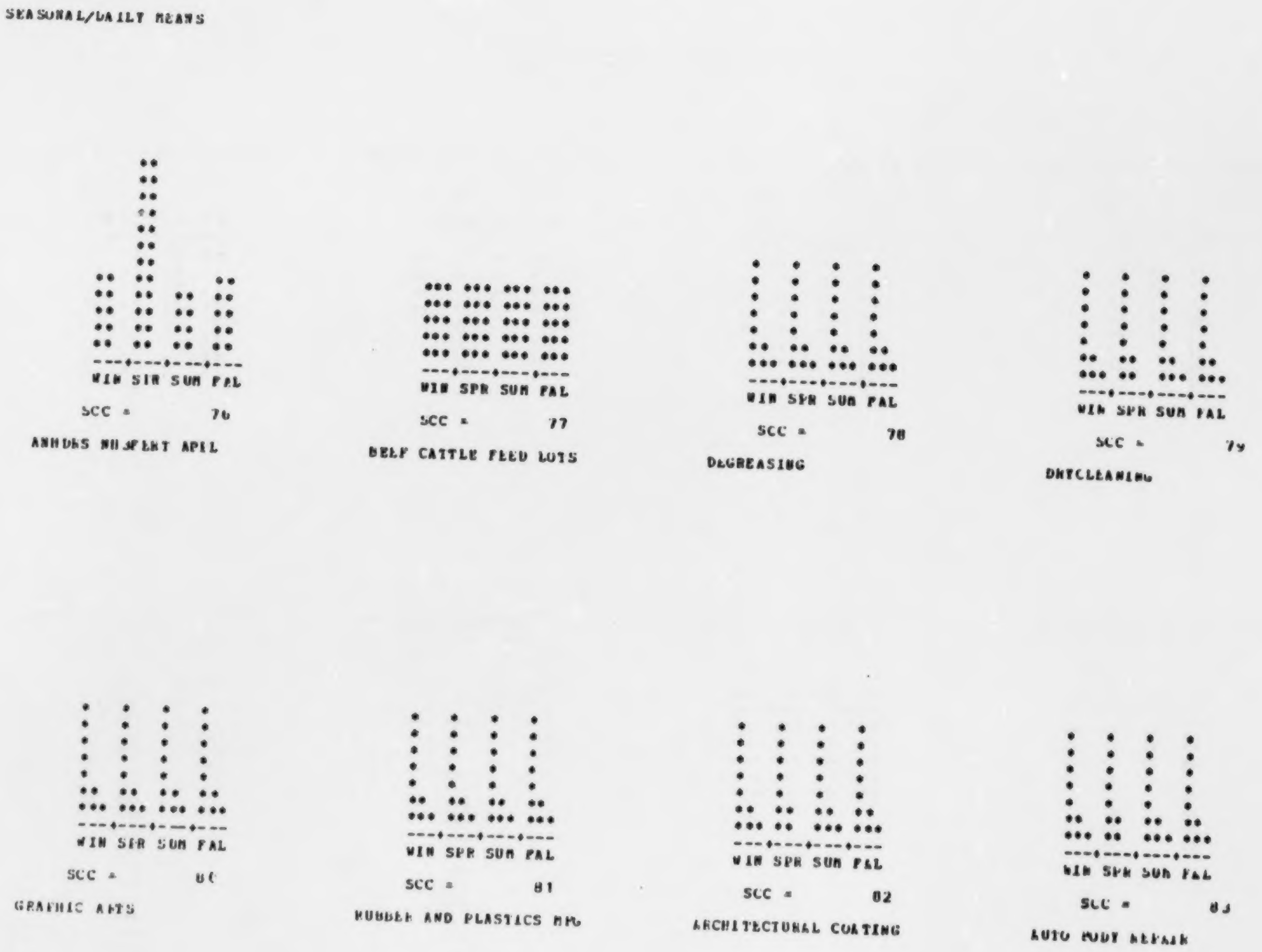
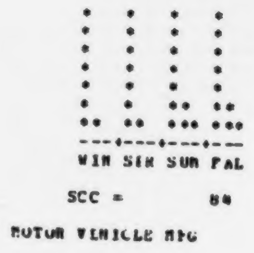
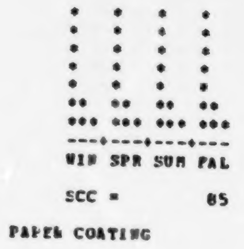
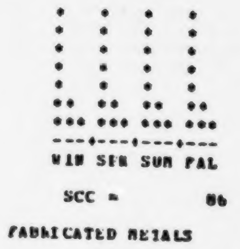
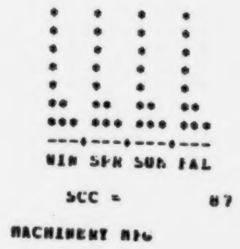


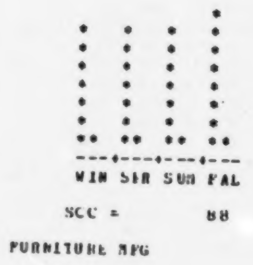
Figure C-1. (continued)

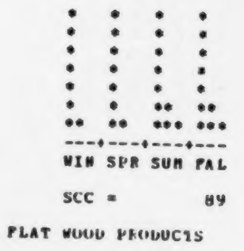


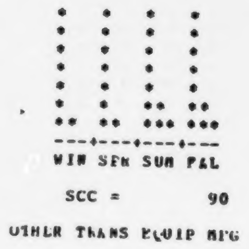












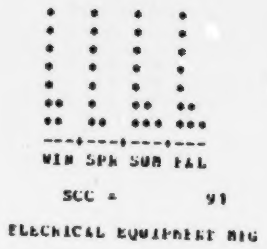
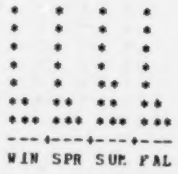


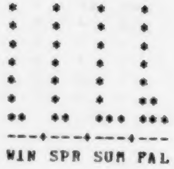
Figure C-1. (continued)

SEASONAL/DAILY MEANS



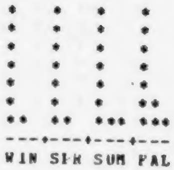
SCC = 92

SHIP BLDG AND REPAIR



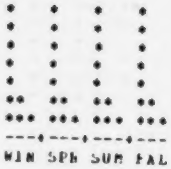
SCC = 93

MISC INDUSTRIAL MFG



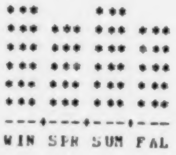
SCC = 94

MISC INDUST SOLVENT USE



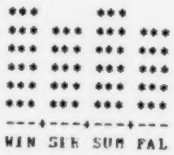
SCC = 95

MISC NONIND SOLVENT USE



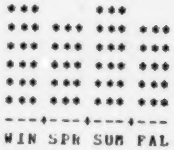
SCC = 96

MINOR UTILITIES - COAL



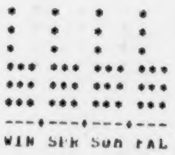
SCC = 97

MINOR UTILITIES - OIL



SCC = 98

MINOR UTILITIES - GAS



SCC = 99

MINOR POINT SOURCES

Figure C-1. (continued)

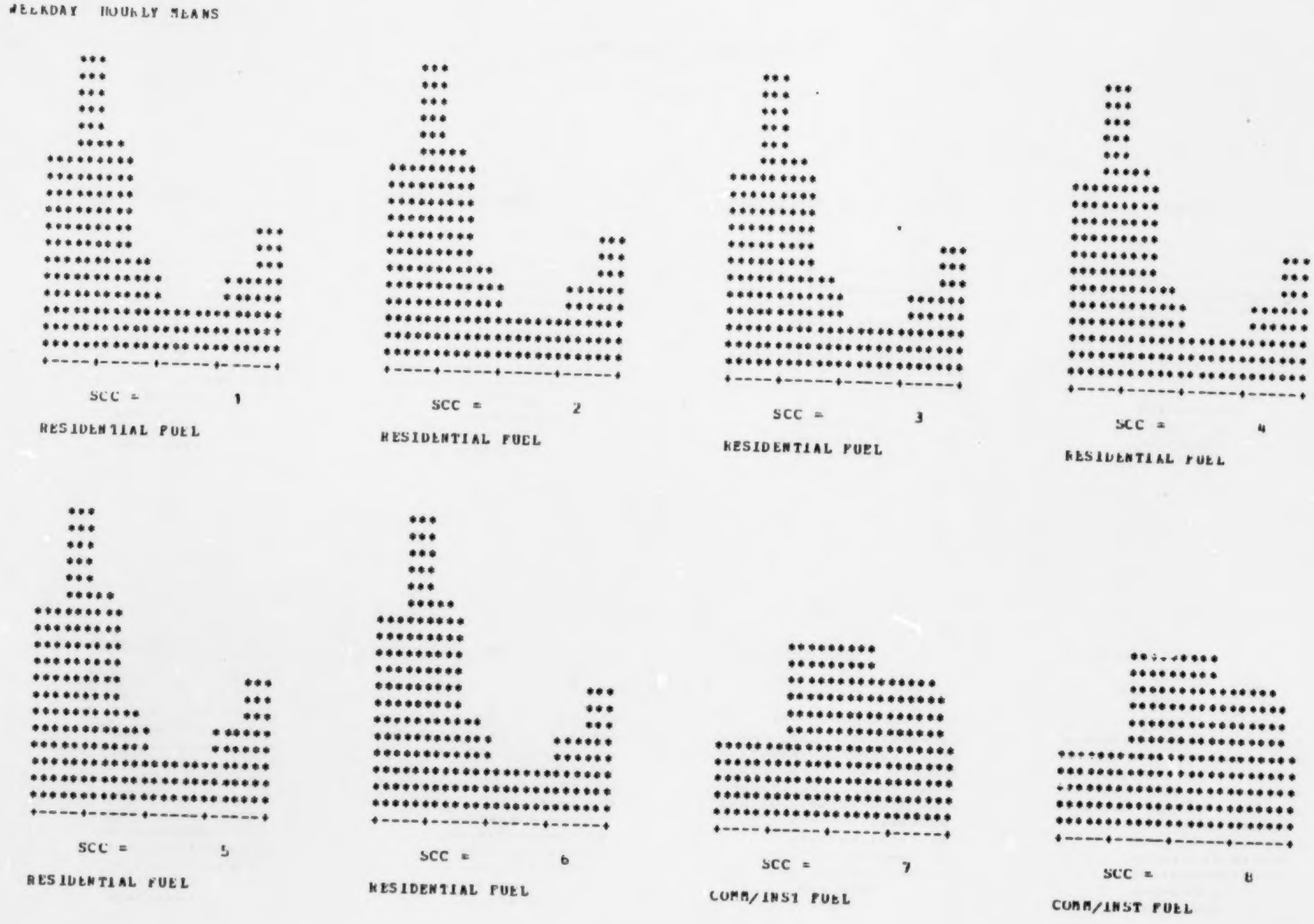
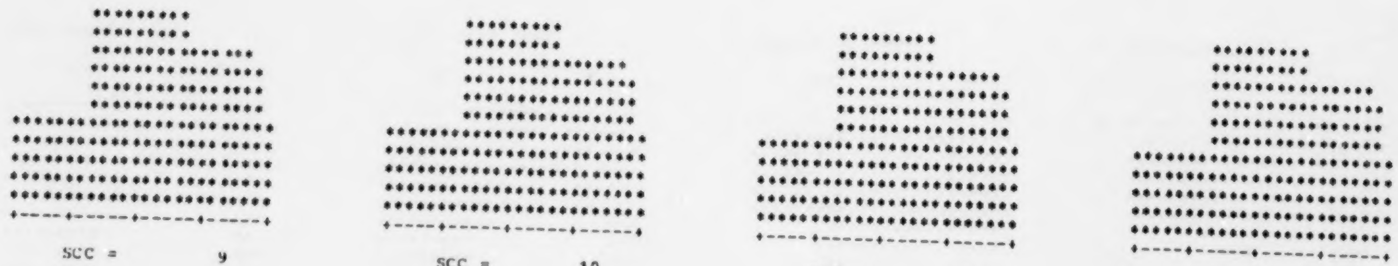


Figure C-2. Hourly emissions allocation patterns by area source category, average weekday.

WEEKDAY HOURLY MEANS

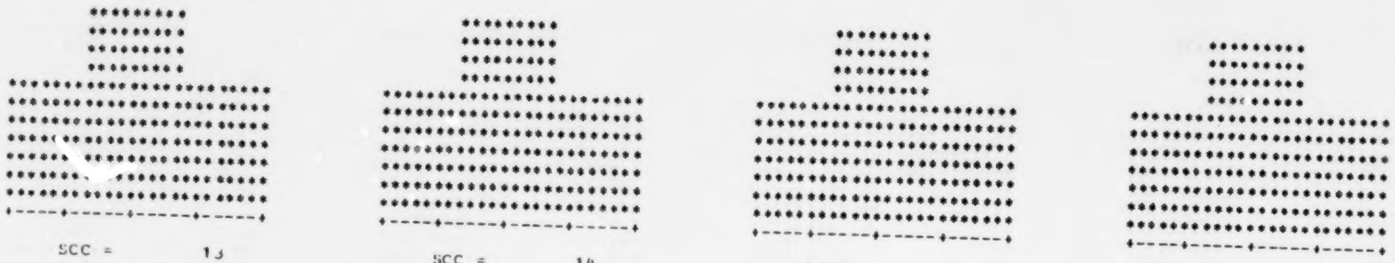


SCC = 9
COMM/INST FUEL

SCC = 10
COMM/INST FUEL

SCC = 11
COMM/INST FUEL

SCC = 12
COMM/INST FUEL



SCC = 13
INDUSTRIAL FUEL

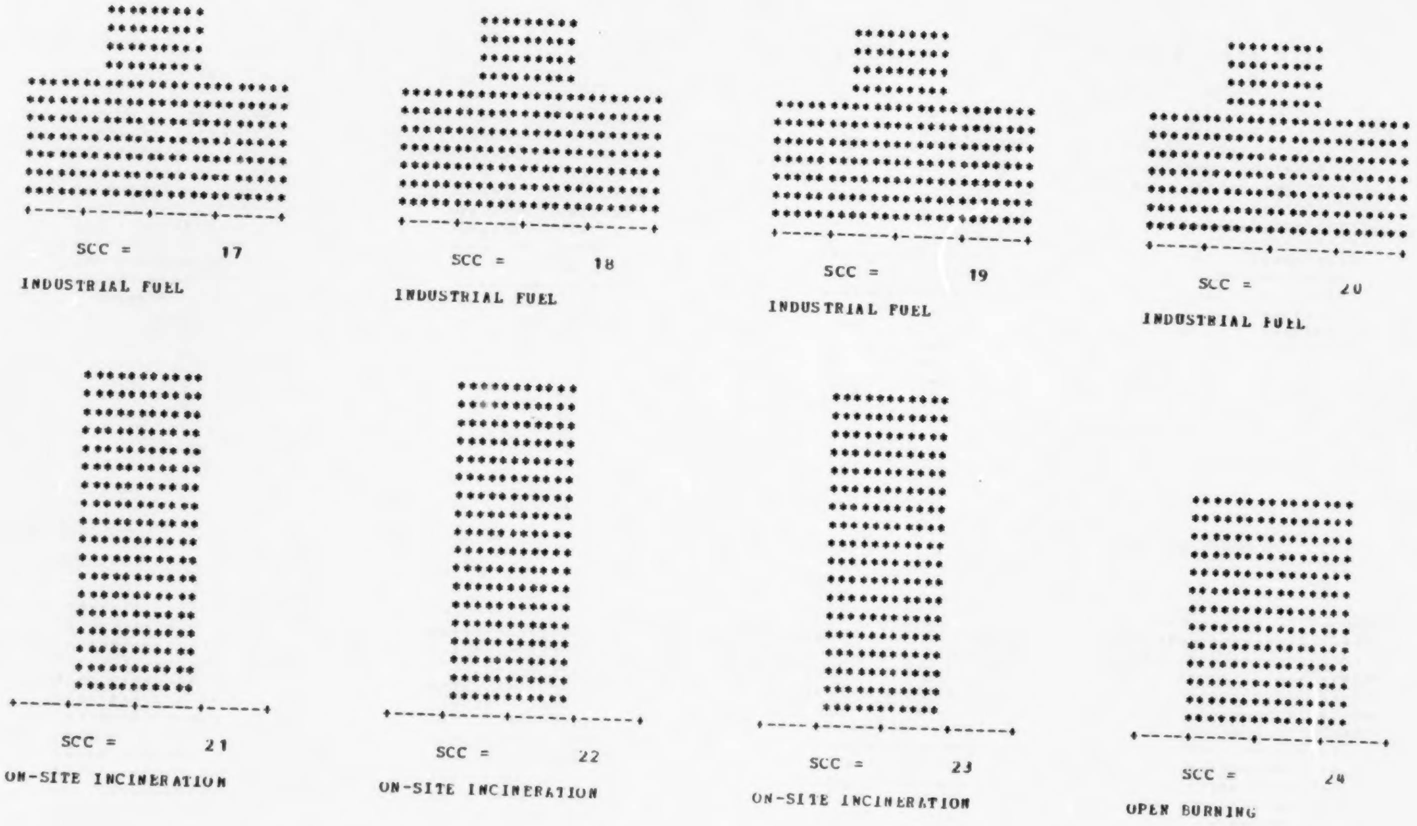
SCC = 14
INDUSTRIAL FUEL

SCC = 15
INDUSTRIAL FUEL

SCC = 16
INDUSTRIAL FUEL

Figure C-2. (continued)

WEEKDAY HOURLY MEANS



SCC = 17
INDUSTRIAL FUEL

SCC = 18
INDUSTRIAL FUEL

SCC = 19
INDUSTRIAL FUEL

SCC = 20
INDUSTRIAL FUEL

SCC = 21
ON-SITE INCINERATION

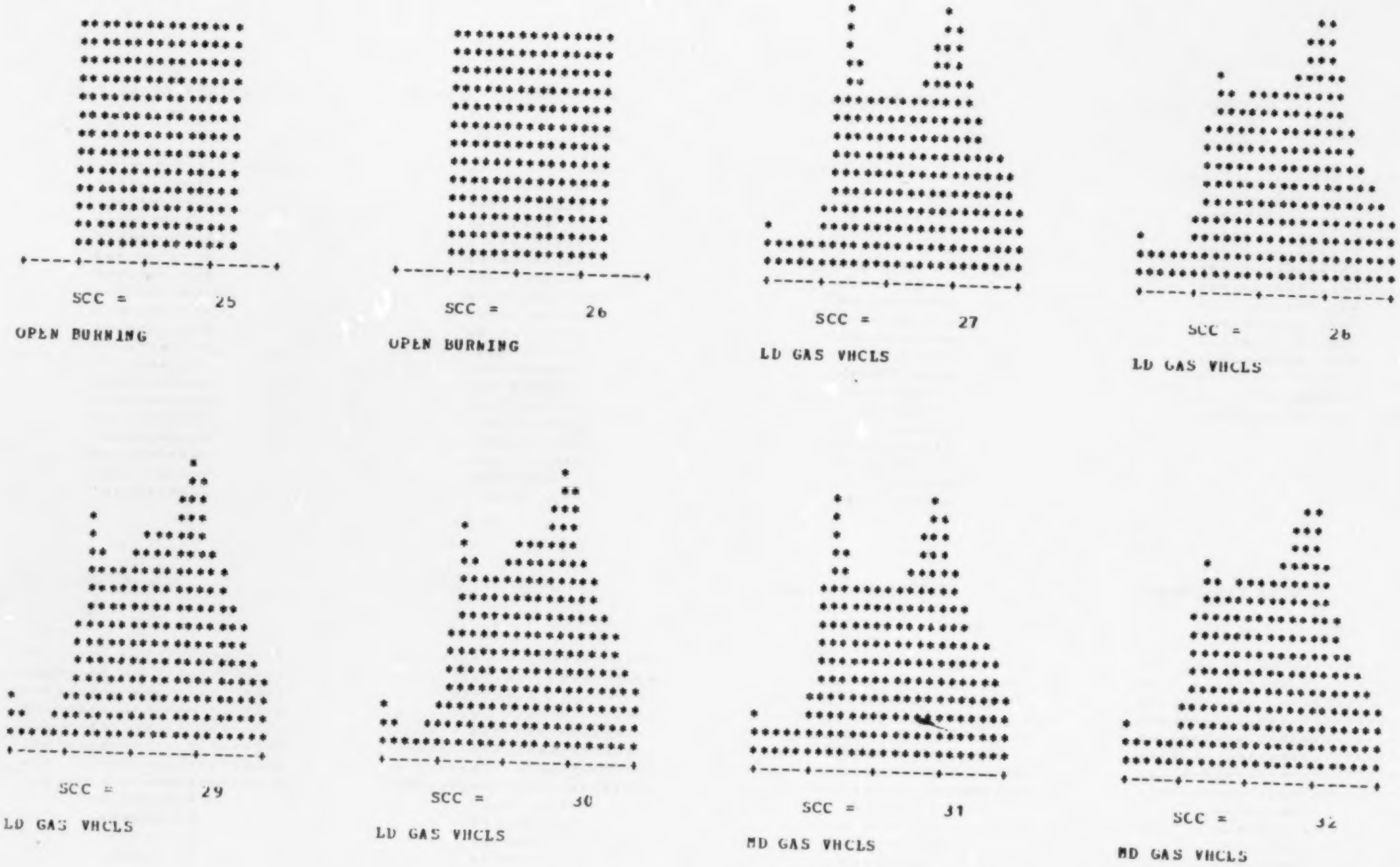
SCC = 22
ON-SITE INCINERATION

SCC = 23
ON-SITE INCINERATION

SCC = 24
OPEN BURNING

Figure C-2. (continued)

WEEKDAY HOURLY MEANS



SCC = 25
OPEN BURNING

SCC = 26
OPEN BURNING

SCC = 27
LD GAS VHCLS

SCC = 26
LD GAS VHCLS

SCC = 29
LD GAS VHCLS

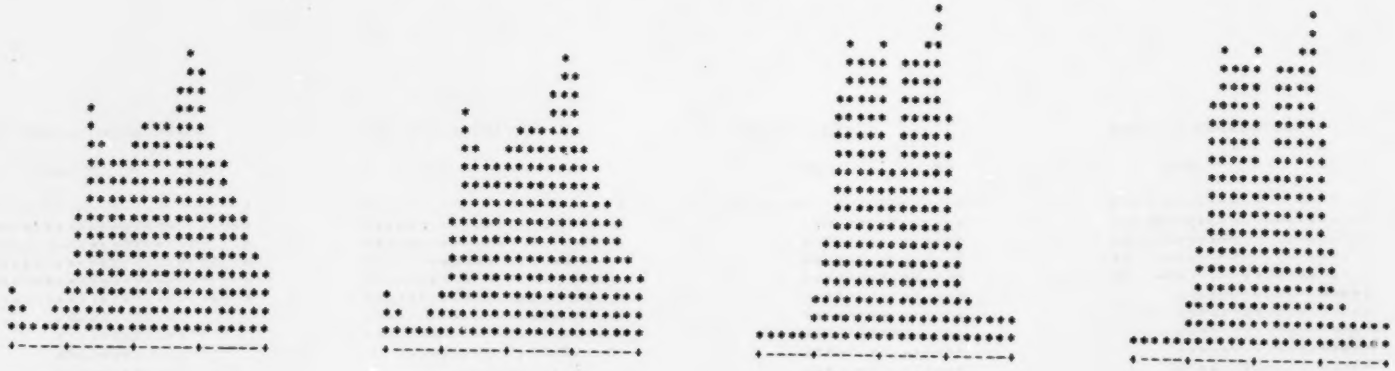
SCC = 30
LD GAS VHCLS

SCC = 31
MD GAS VHCLS

SCC = 32
MD GAS VHCLS

Figure C-2. (continued)

WEEKDAY HOURLY MEANS

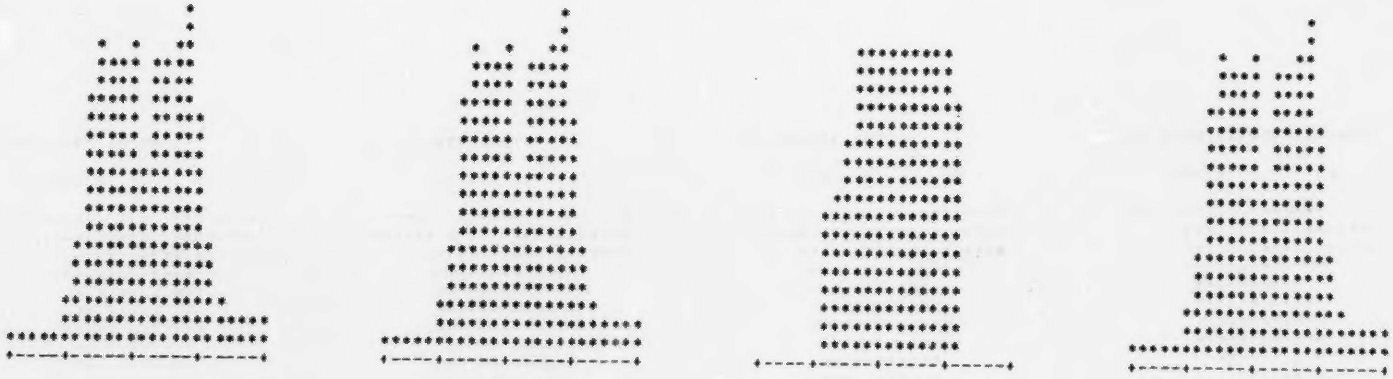


SCC = 33
MD GAS VHCLS

SCC = 34
MD GAS VHCLS

SCC = 35
HD GAS VHCLS

SCC = 36
HD GAS VHCLS



SCC = 37
HD GAS VHCLS

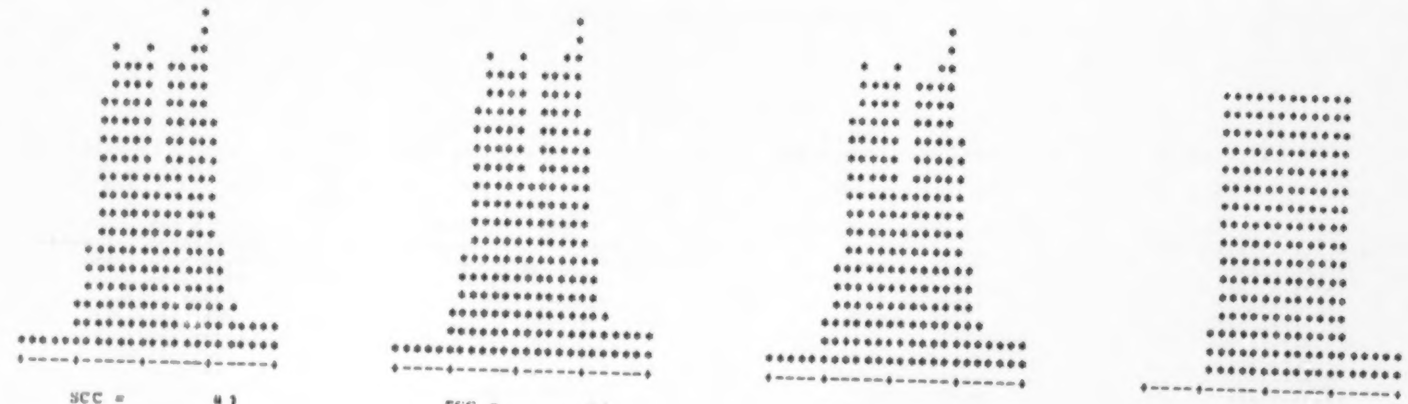
SCC = 38
HD GAS VHCLS

SCC = 39
OFF HIGHWAY GAS VHCLS

SCC = 40
HD DIESEL VHCLS

Figure C-2. (continued)

WEEKDAY HOURLY MEANS

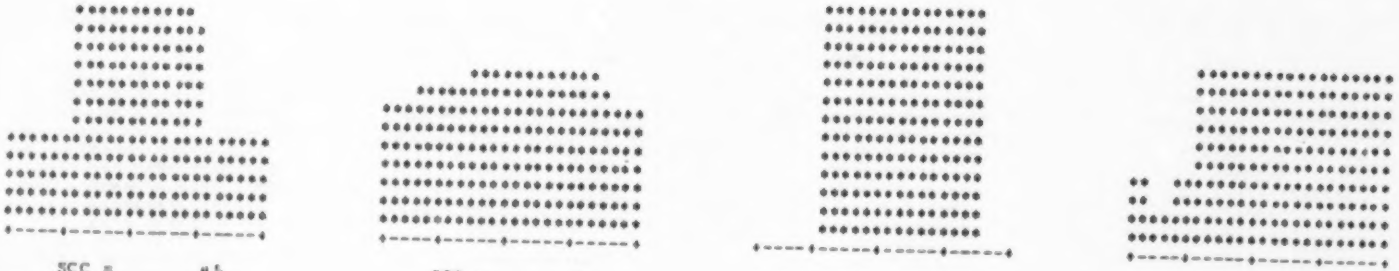


SCC = 41
HD DIESEL VHCLS

SCC = 42
HD DIESEL VHCLS

SCC = 43
HD DIESEL VHCLS

SCC = 44
OFF HIGHWAY DIESEL VHCLS



SCC = 45
RAILROAD LOCOMOTIVES

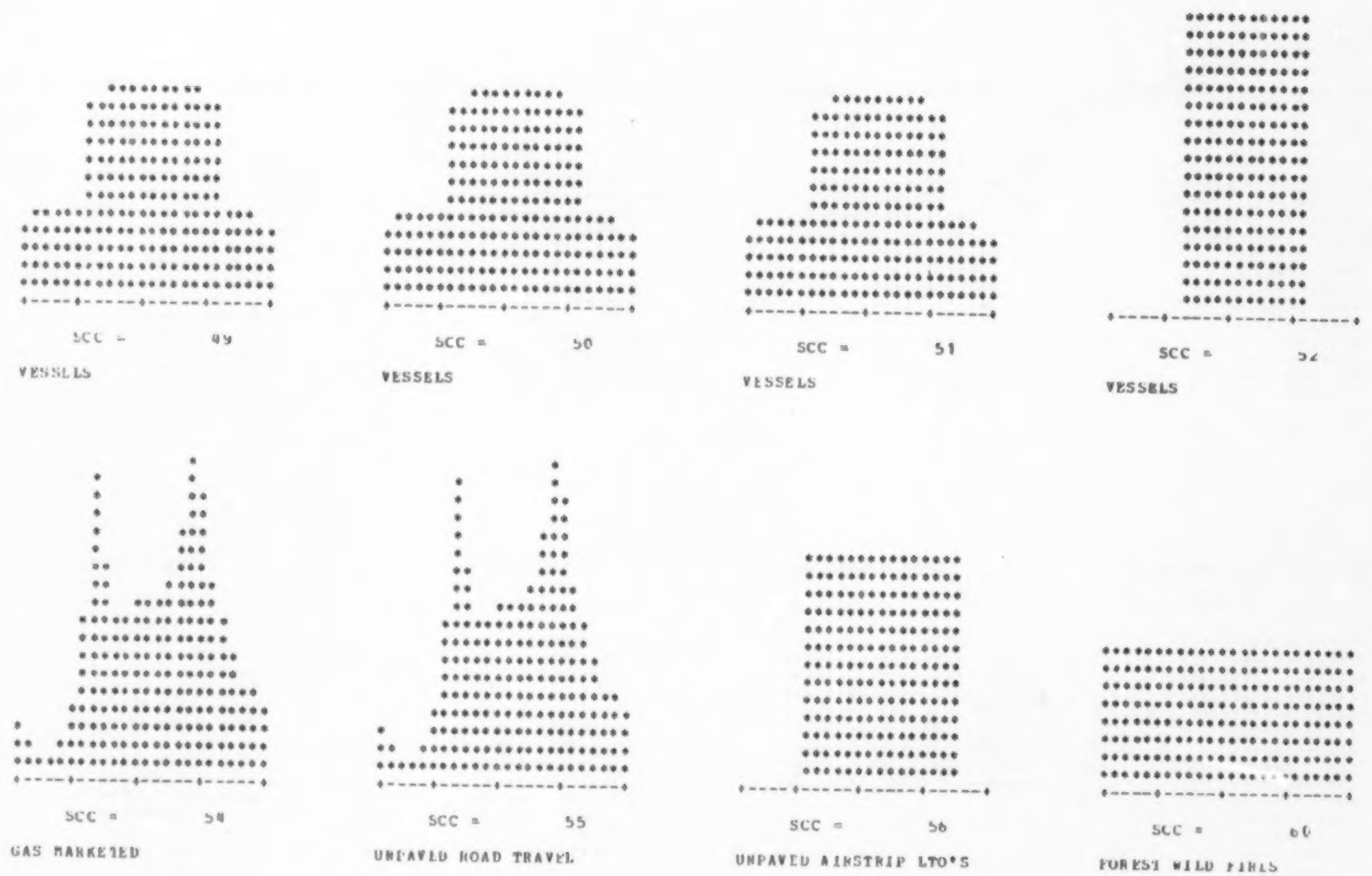
SCC = 46
LTO'S - MILITARY

SCC = 47
LTO'S - CIVIL

SCC = 48
LTO'S - COMMERCIAL

Figure C-2. (continued)

WEEKDAY HOURLY MEANS



SCC = 49
VESSELS

SCC = 50
VESSELS

SCC = 51
VESSELS

SCC = 52
VESSELS

SCC = 54
GAS MARKETED

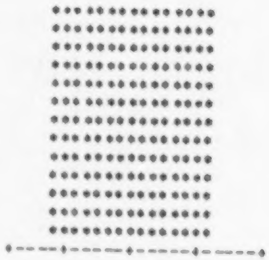
SCC = 55
UNPAVED ROAD TRAVEL

SCC = 56
UNPAVED AIRSTRIP LTO'S

SCC = 60
FOREST WILD FIRES

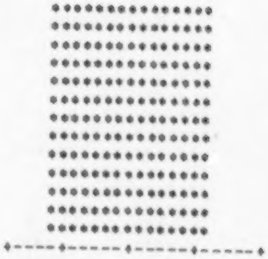
Figure C-2. (continued)

WEEKDAY HOURLY MEANS



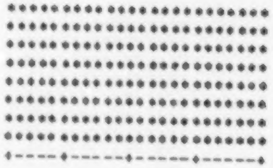
SCC = 61

MANAGED BURNING



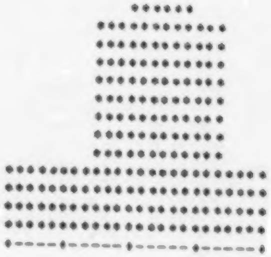
SCC = 62

AGR FIELD BURNING



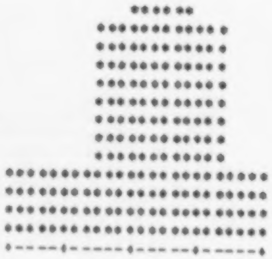
SCC = 64

STRUCTURAL FIRES



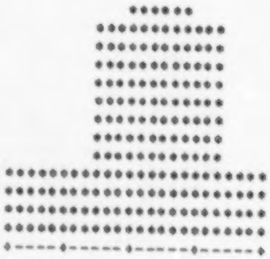
SCC = 71

MANURE FIELD APPLICATION



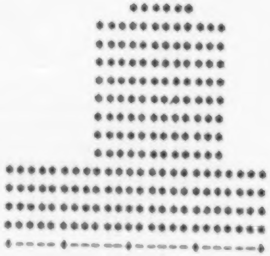
SCC = 72

MANURE FIELD APPLICATION



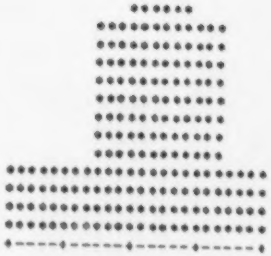
SCC = 73

MANURE FIELD APPLICATION



SCC = 74

MANURE FIELD APPLICATION

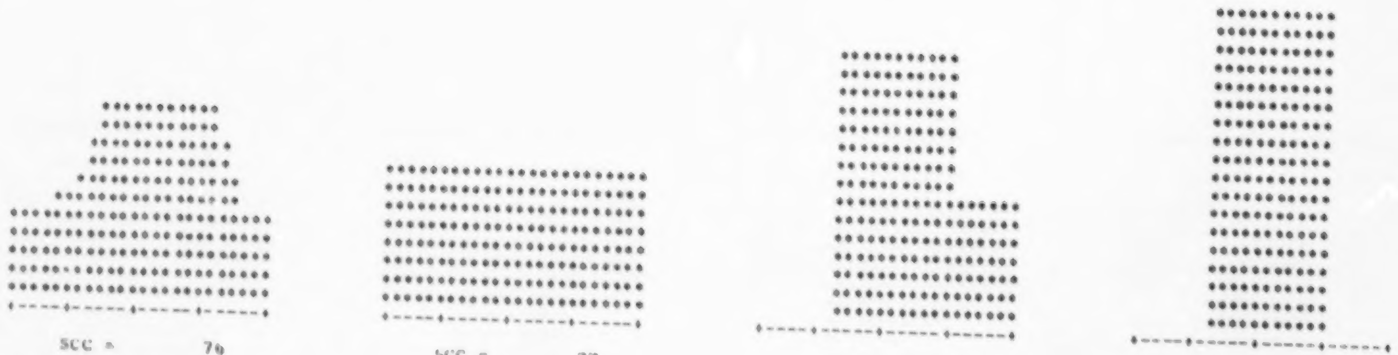


SCC = 75

MANURE FIELD APPLICATION

Figure C-2. (continued)

WEEKDAY HOURLY MEANS

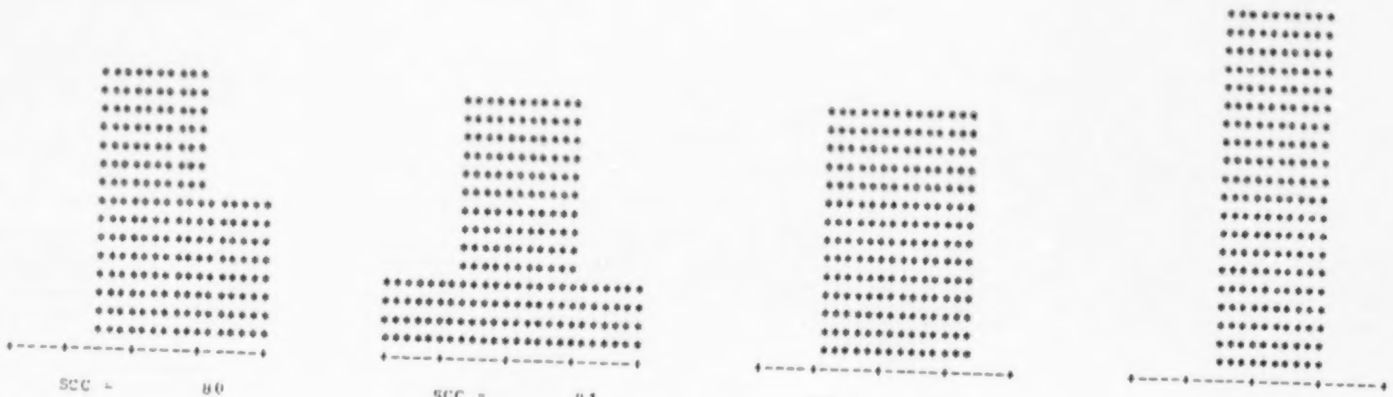


SCC = 76
ANHDRS NRJPERT APPL

SCC = 77
BEEF CATTLE FEED LOTS

SCC = 78
DEGREASING

SCC = 79
DRYCLEANING



SCC = 80
GRAPHIC ARTS

SCC = 81
RUBBER AND PLASTICS MFG

SCC = 82
ARCHITECTURAL COATING

SCC = 83
AUTO BODY REPAIR

Figure C-2. (continued)

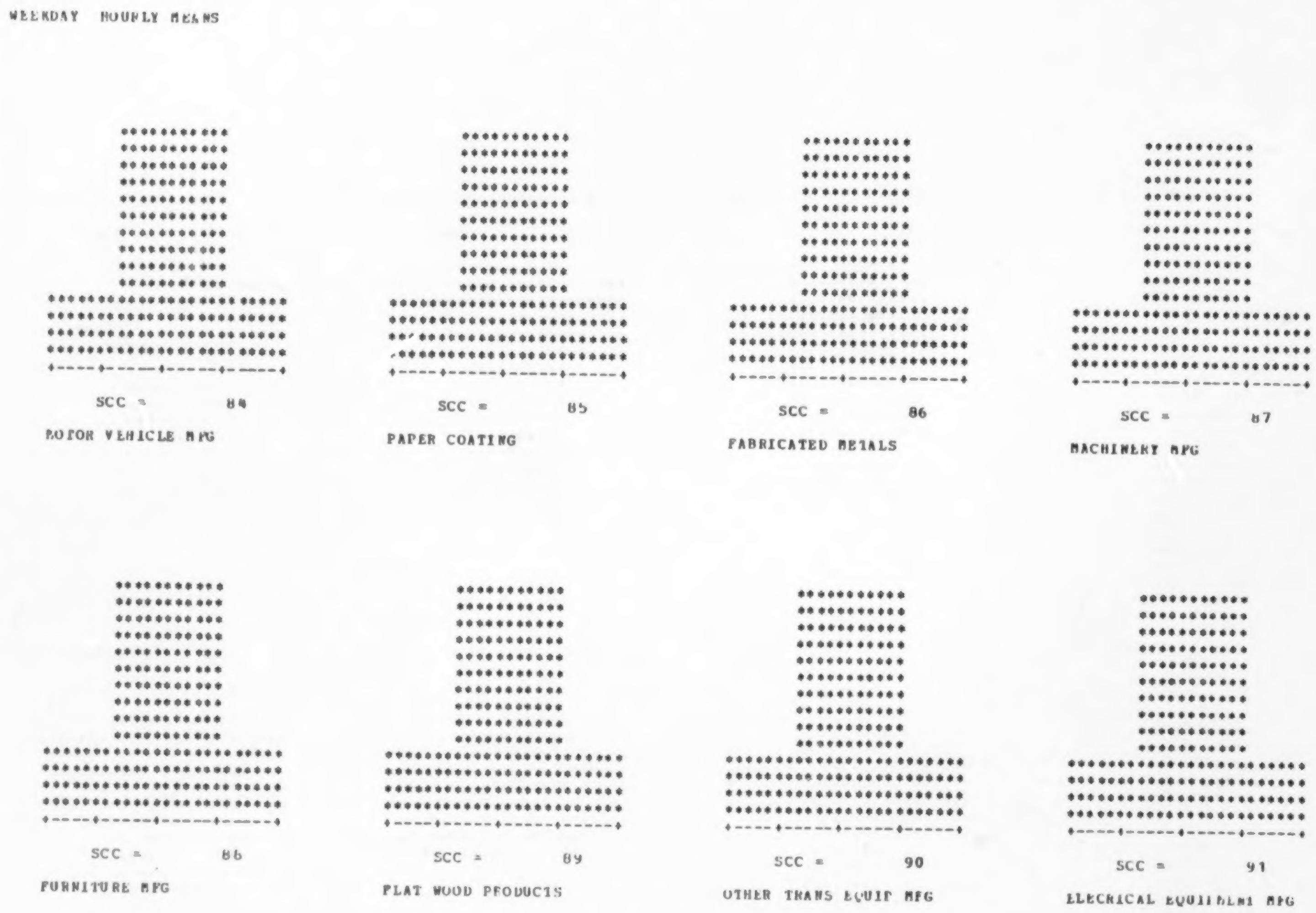
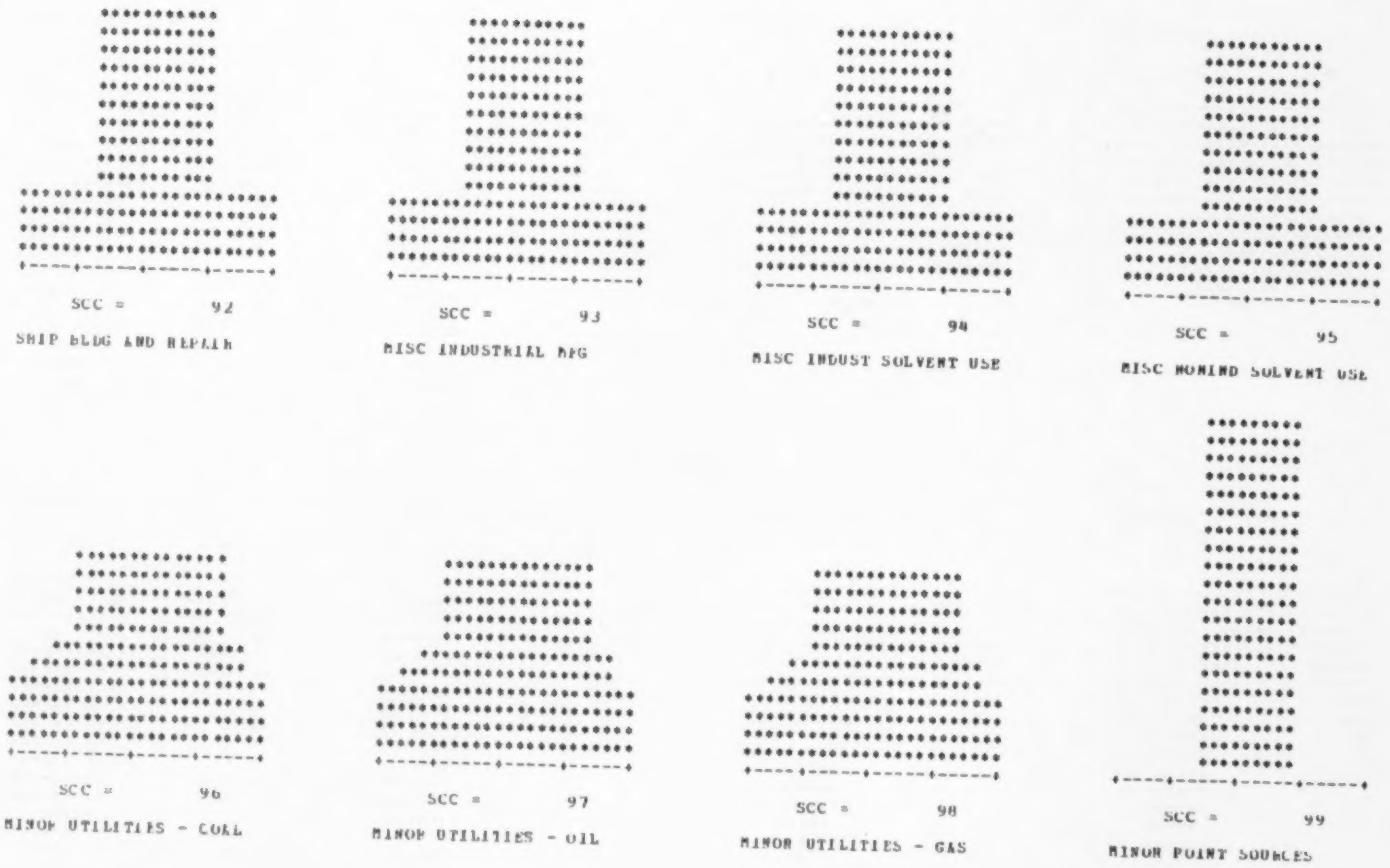


Figure C-2. (continued)

WEEKDAY HOURLY MEANS



SCC = 92
SHIP BLDG AND REPAIR

SCC = 93
MISC INDUSTRIAL MFG

SCC = 94
MISC INDUST SOLVENT USE

SCC = 95
MISC NONIND SOLVENT USE

SCC = 96
MINOR UTILITIES - COAL

SCC = 97
MINOR UTILITIES - OIL

SCC = 98
MINOR UTILITIES - GAS

SCC = 99
MINOR POINT SOURCES

Figure C-2. (continued)

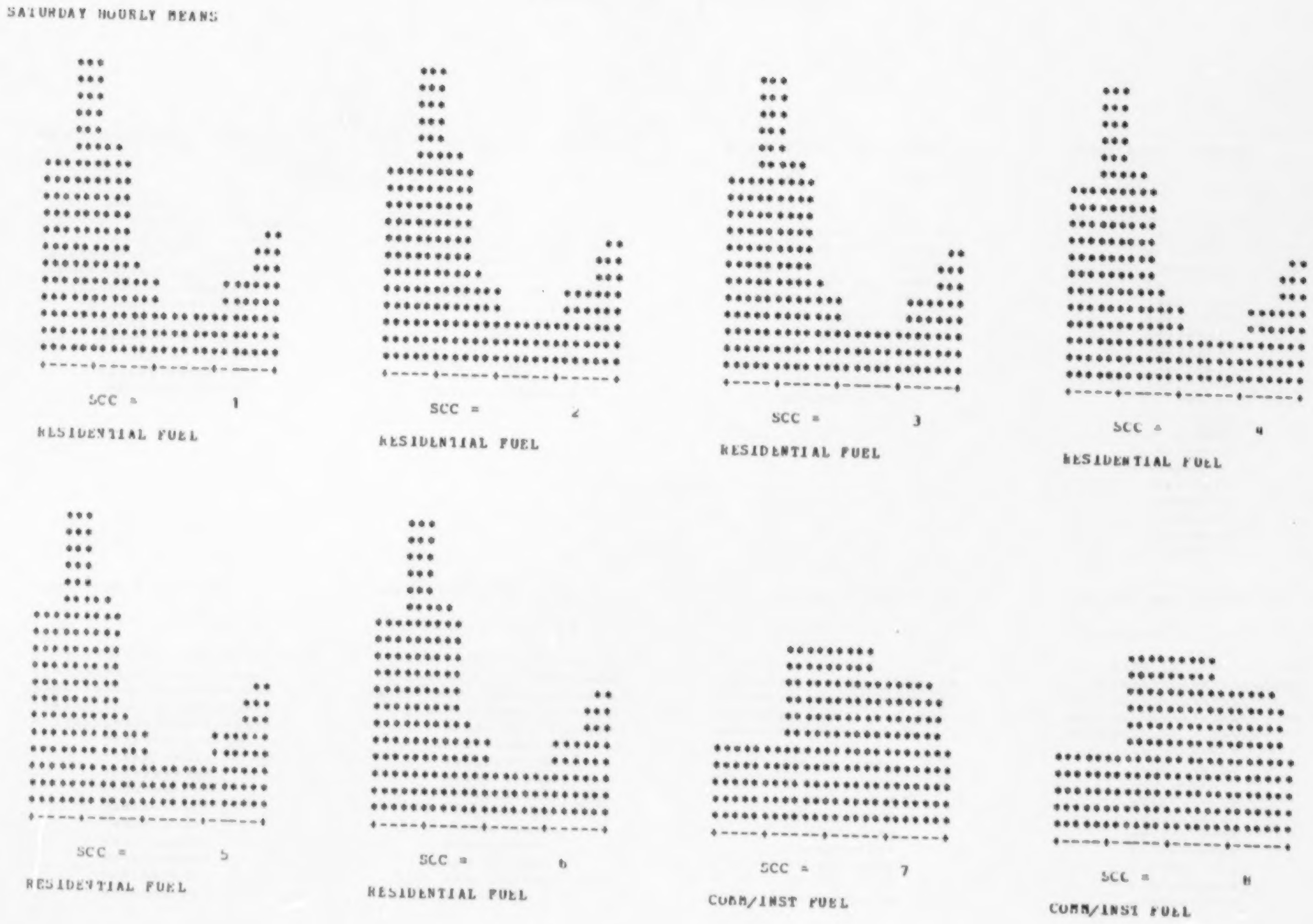
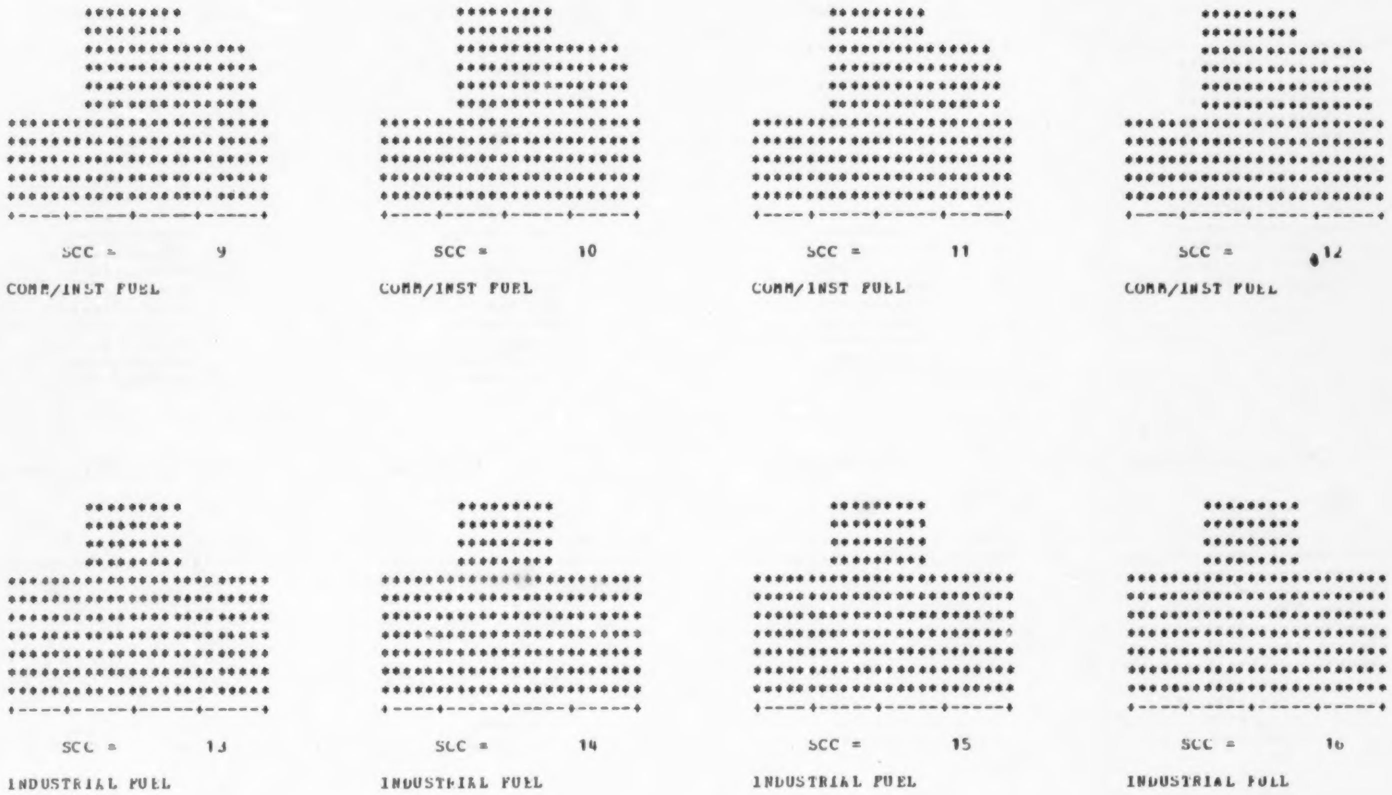


Figure C-3. Hourly emissions allocation patterns by area source category, average Saturday.

SATURDAY HOURLY MEANS


SCC = 9
COMM/INST FUEL

SCC = 10
COMM/INST FUEL

SCC = 11
COMM/INST FUEL

SCC = 12
COMM/INST FUEL

SCC = 13
INDUSTRIAL FUEL

SCC = 14
INDUSTRIAL FUEL

SCC = 15
INDUSTRIAL FUEL

SCC = 16
INDUSTRIAL FUEL

Figure C-3. (continued)

SATURDAY HOURLY MEANS

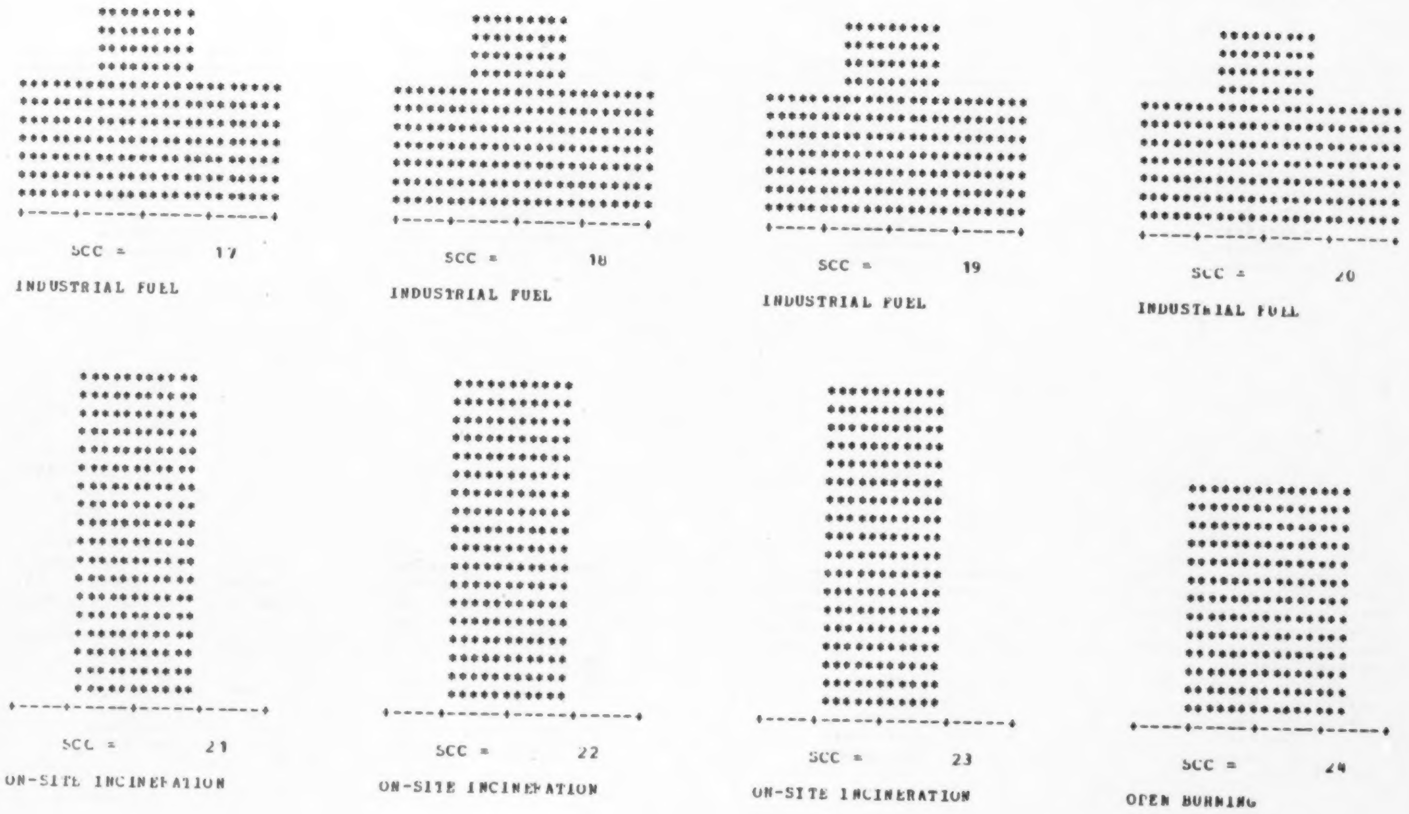
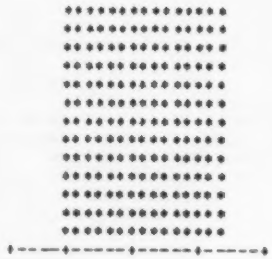


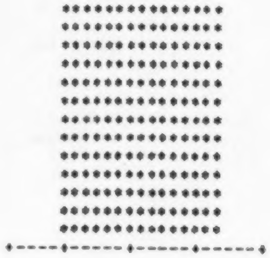
Figure C-3. (continued)

SATURDAY HOURLY MEANS



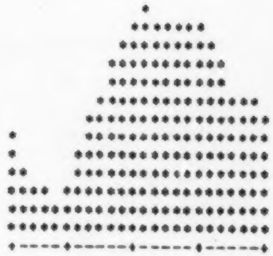
SCC = 25

OPEN BURNING



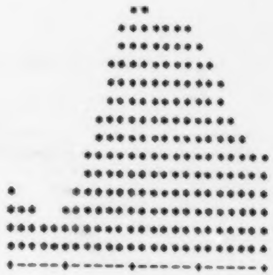
SCC = 26

OPEN BURNING



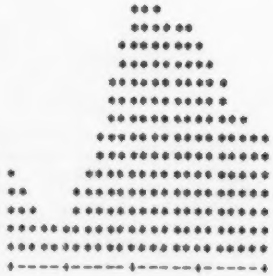
SCC = 27

LD GAS VHCLS



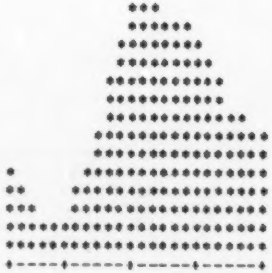
SCC = 28

LD GAS VHCLS



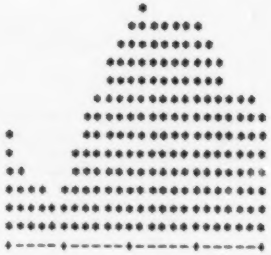
SCC = 29

LD GAS VHCLS



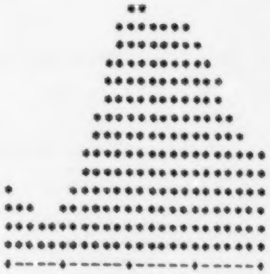
SCC = 30

LD GAS VHCLS



SCC = 31

HD GAS VHCLS

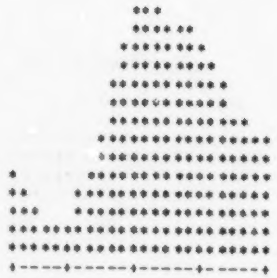


SCC = 32

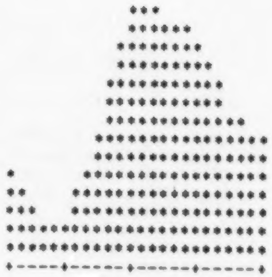
HD GAS VHCLS

Figure C-3. (continued)

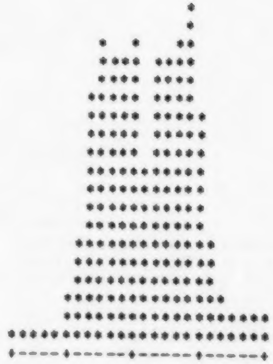
SATURDAY HOURLY MEANS


SCC = 33

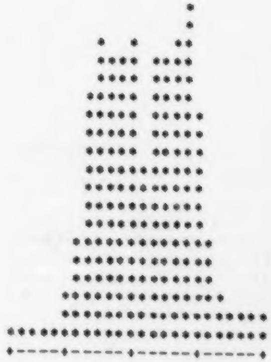
MD GAS VHCLS


SCC = 34

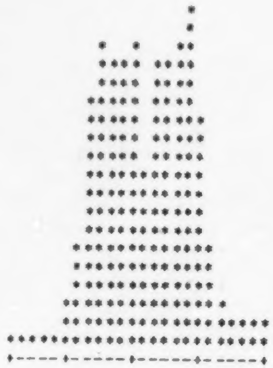
MD GAS VHCLS


SCC = 35

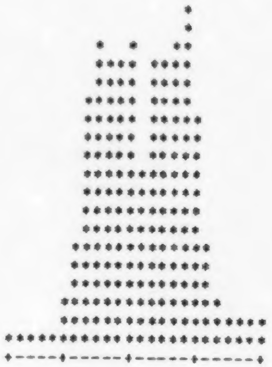
HD GAS VHCLS


SCC = 36

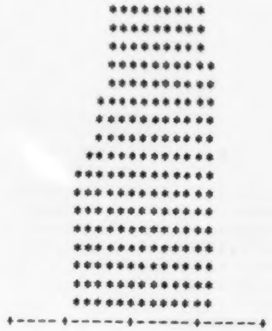
HD GAS VHCLS


SCC = 37

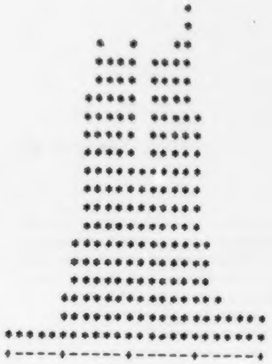
HD GAS VHCLS


SCC = 38

HD GAS VHCLS


SCC = 39

OFF HIGHWAY GAS VHCLS


SCC = 40

HD DIESEL VHCLS

Figure C-3. (continued)

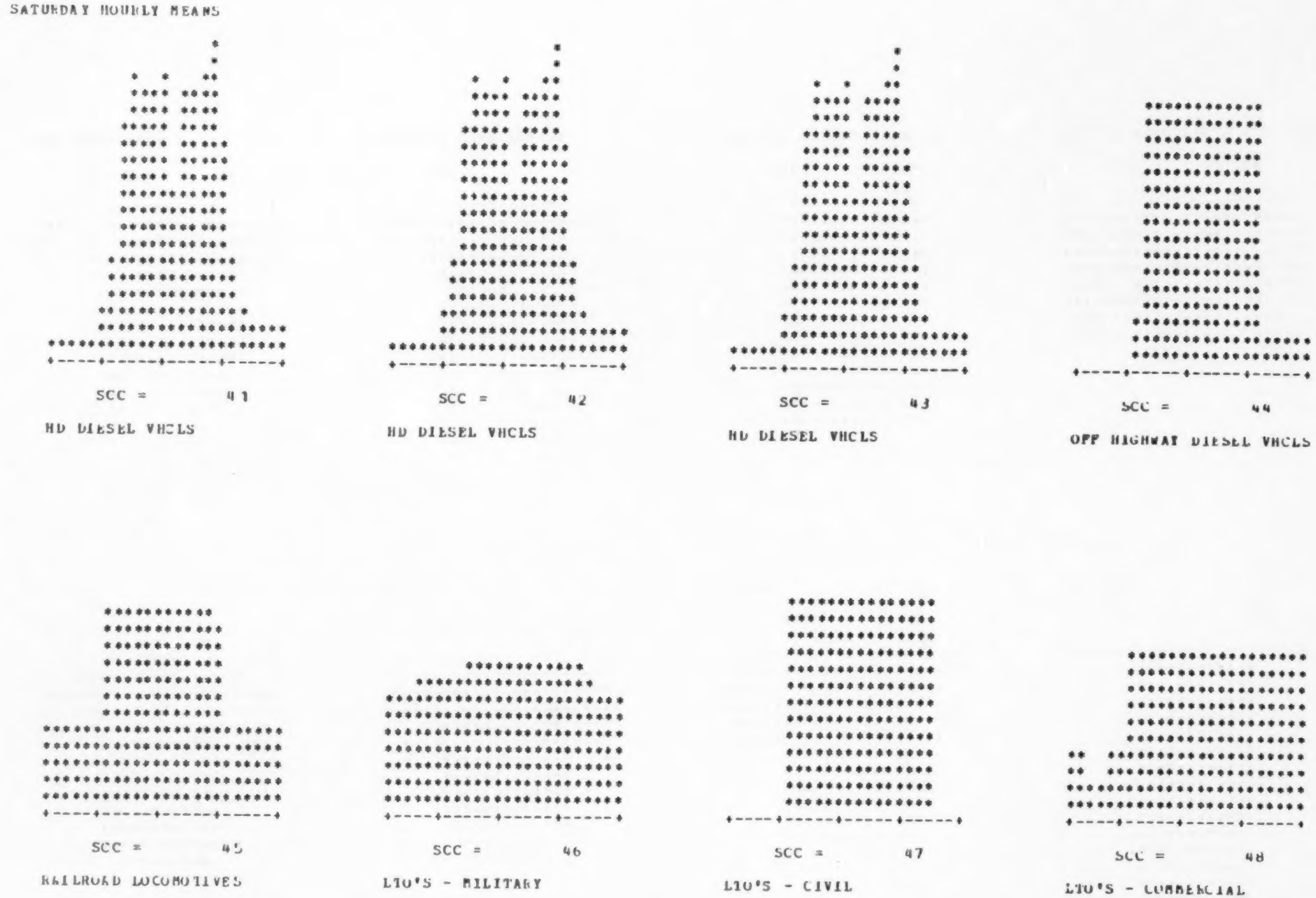
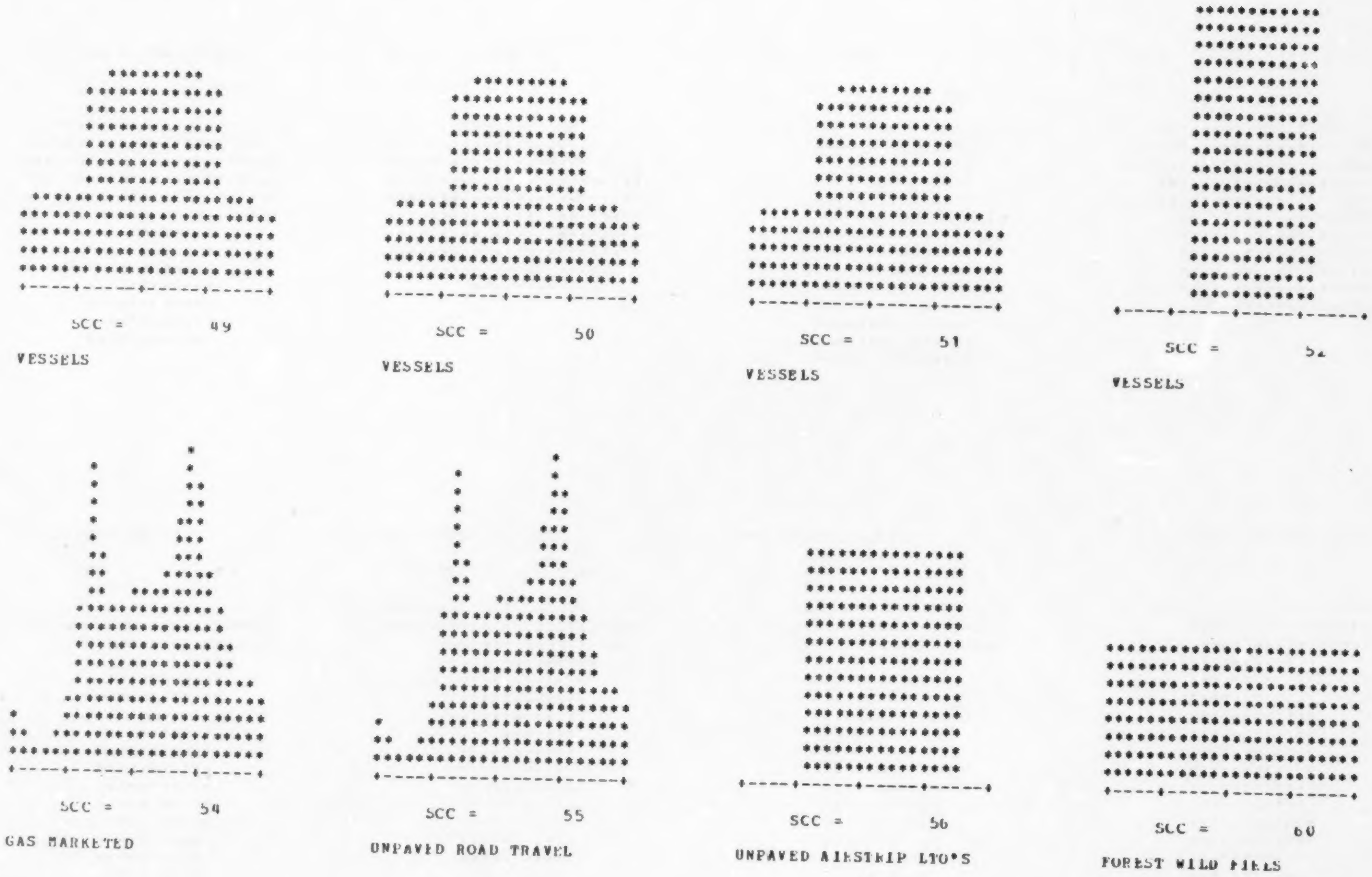


Figure C-3. (continued)

SATURDAY HOURLY MEANS



SCC = 49
VESSELS

SCC = 50
VESSELS

SCC = 51
VESSELS

SCC = 52
VESSELS

SCC = 54
GAS MARKETED

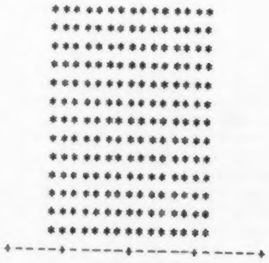
SCC = 55
UNPAVED ROAD TRAVEL

SCC = 56
UNPAVED AIRSTRIP LTO'S

SCC = 60
FOREST WILD FIRES

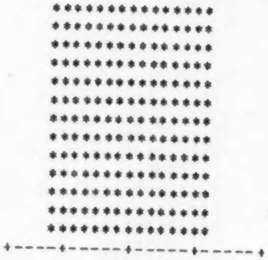
Figure C-3. (continued)

SATURDAY HOURLY MEANS



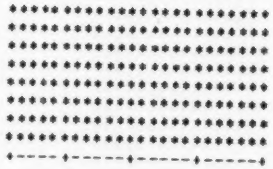
SCC = 61

MANAGED BURNING



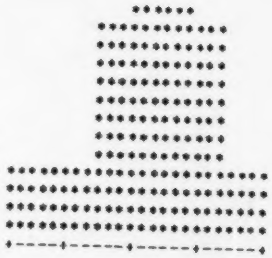
SCC = 62

AGR FIELD BURNING



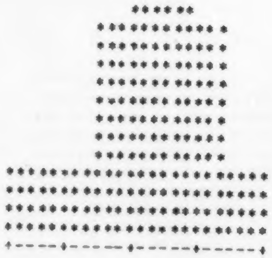
SCC = 64

STRUCTURAL FIRES



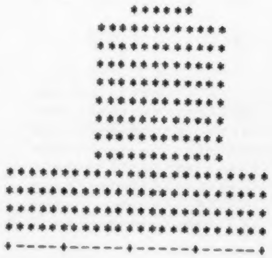
SCC = 71

MANURE FIELD APPLICATION



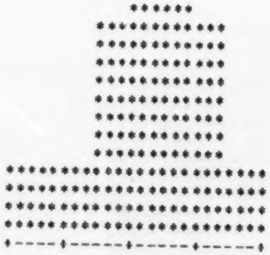
SCC = 72

MANURE FIELD APPLICATION



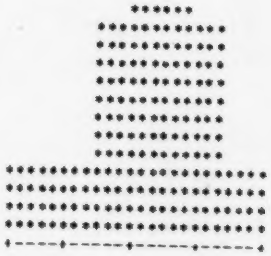
SCC = 73

MANURE FIELD APPLICATION



SCC = 74

MANURE FIELD APPLICATION



SCC = 75

MANURE FIELD APPLICATION

Figure C-3. (continued)

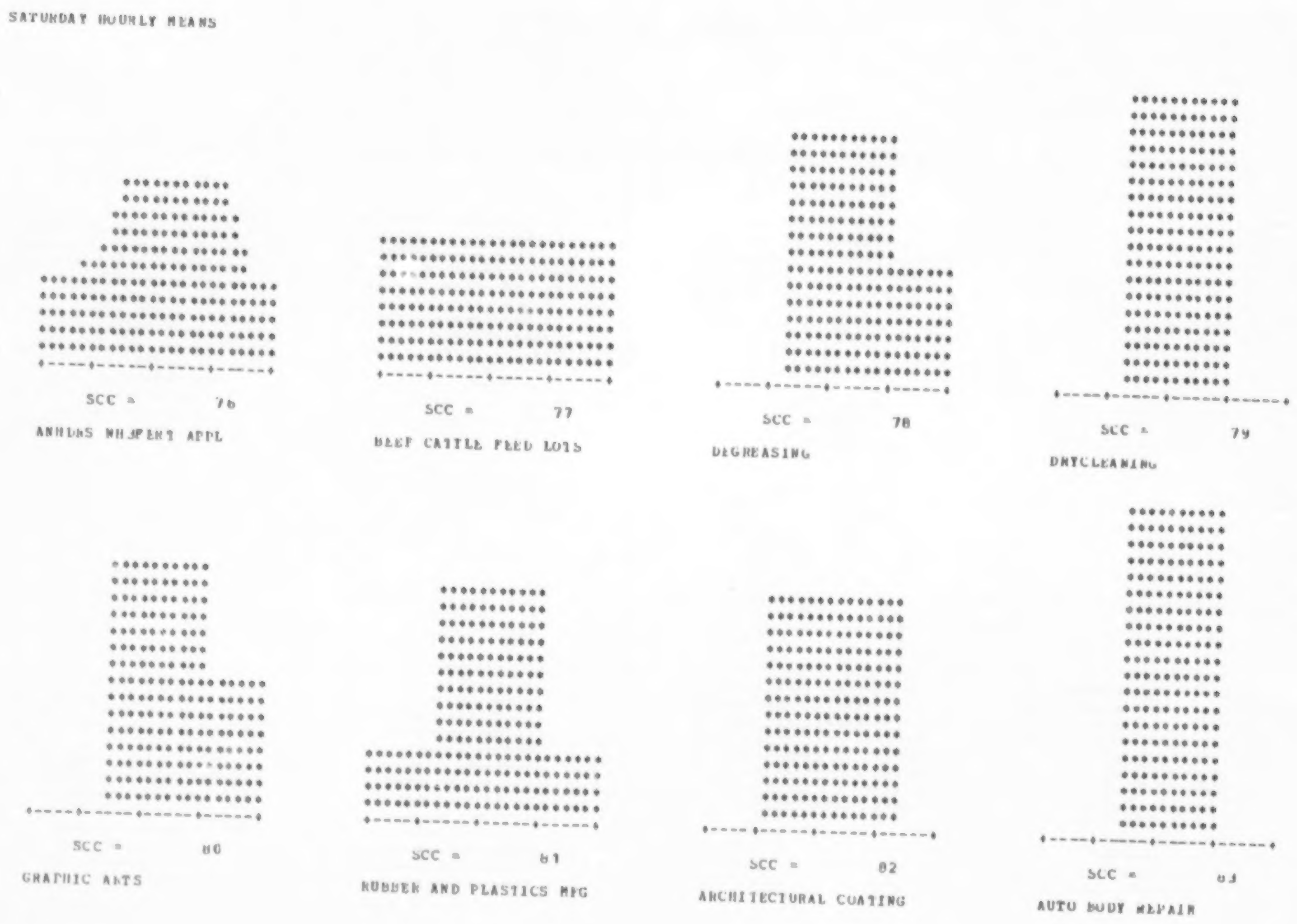
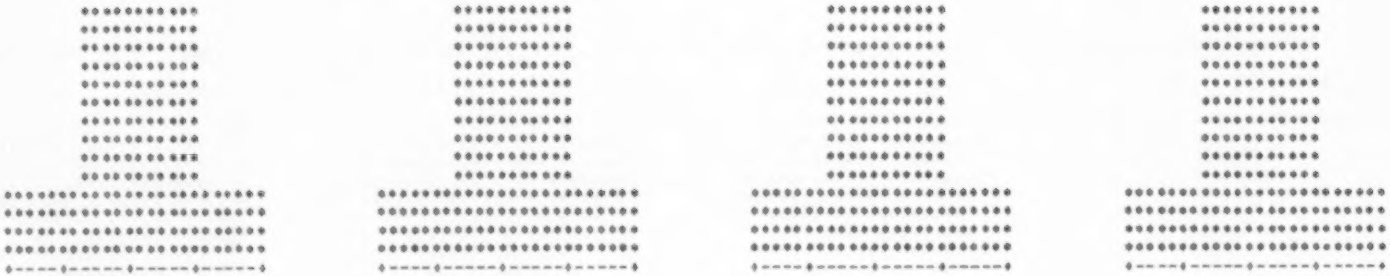


Figure C-3. (continued)

SATURDAY HOURLY MEANS

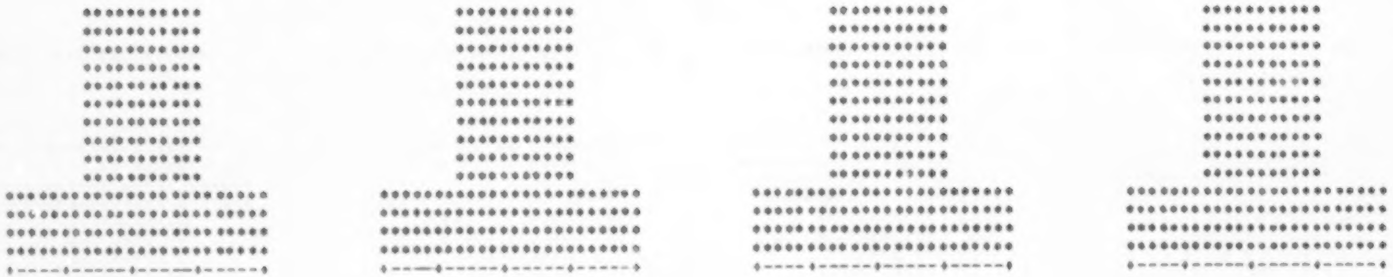


SCC = 84
MOTOR VEHICLE MFG

SCC = 85
PAPER COATING

SCC = 86
FABRICATED METALS

SCC = 87
MACHINERY MFG



SCC = 88
FURNITURE MFG

SCC = 89
FLAT WOOD PRODUCTS

SCC = 90
OTHER TRANS EQUIP MFG

SCC = 91
ELECTRICAL EQUIPMENT MFG

Figure C-3. (continued)

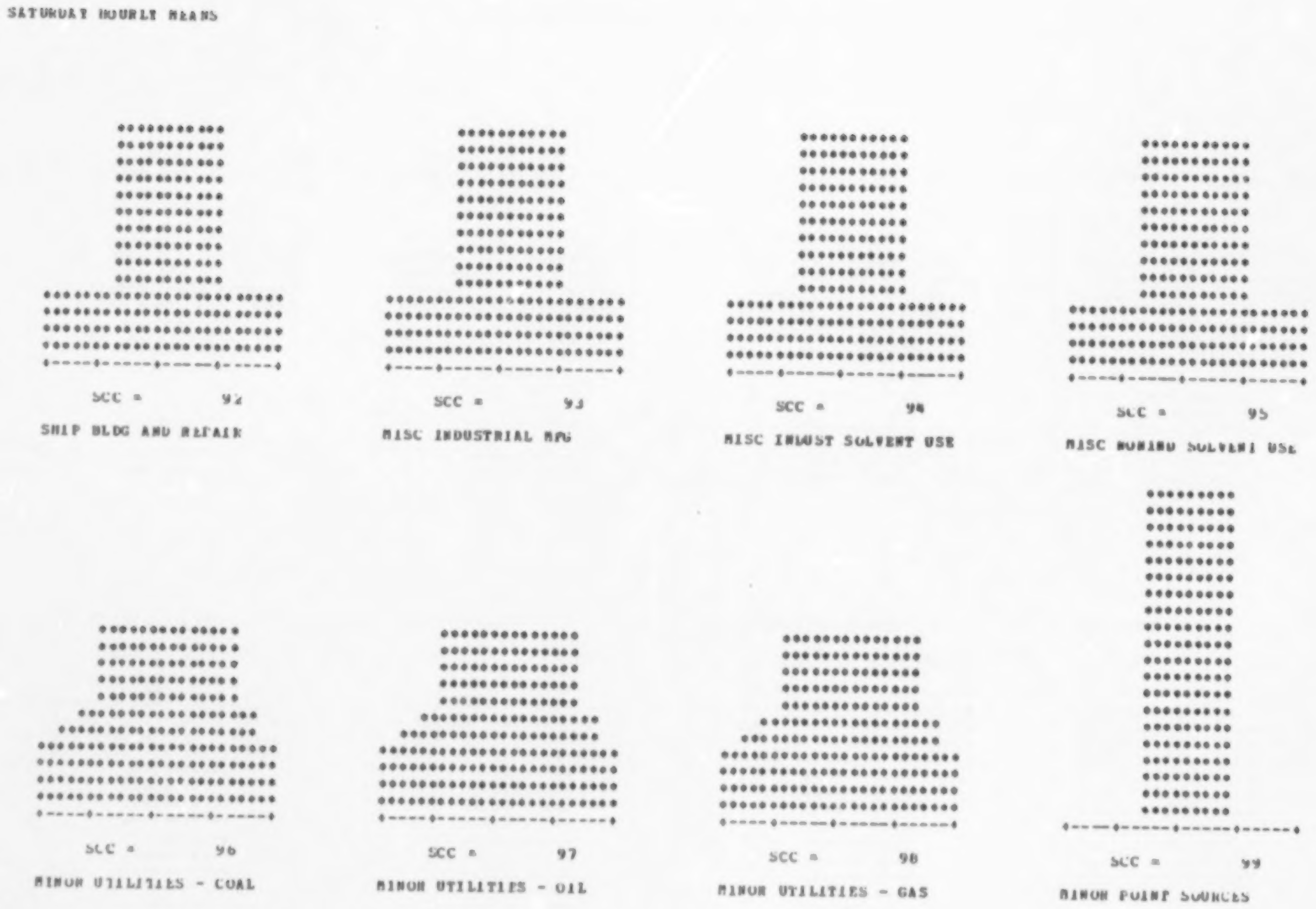


Figure C-3. (continued)

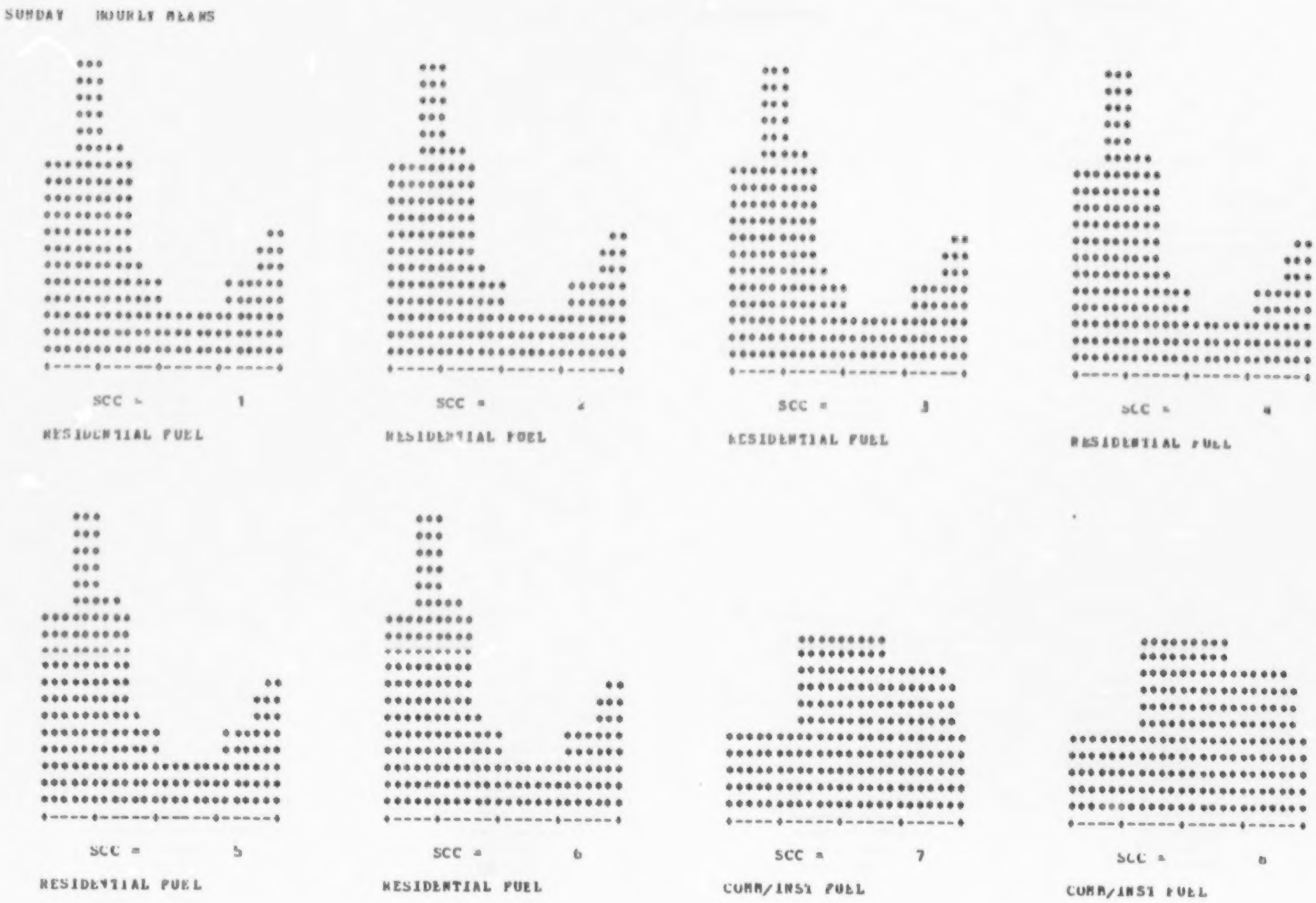
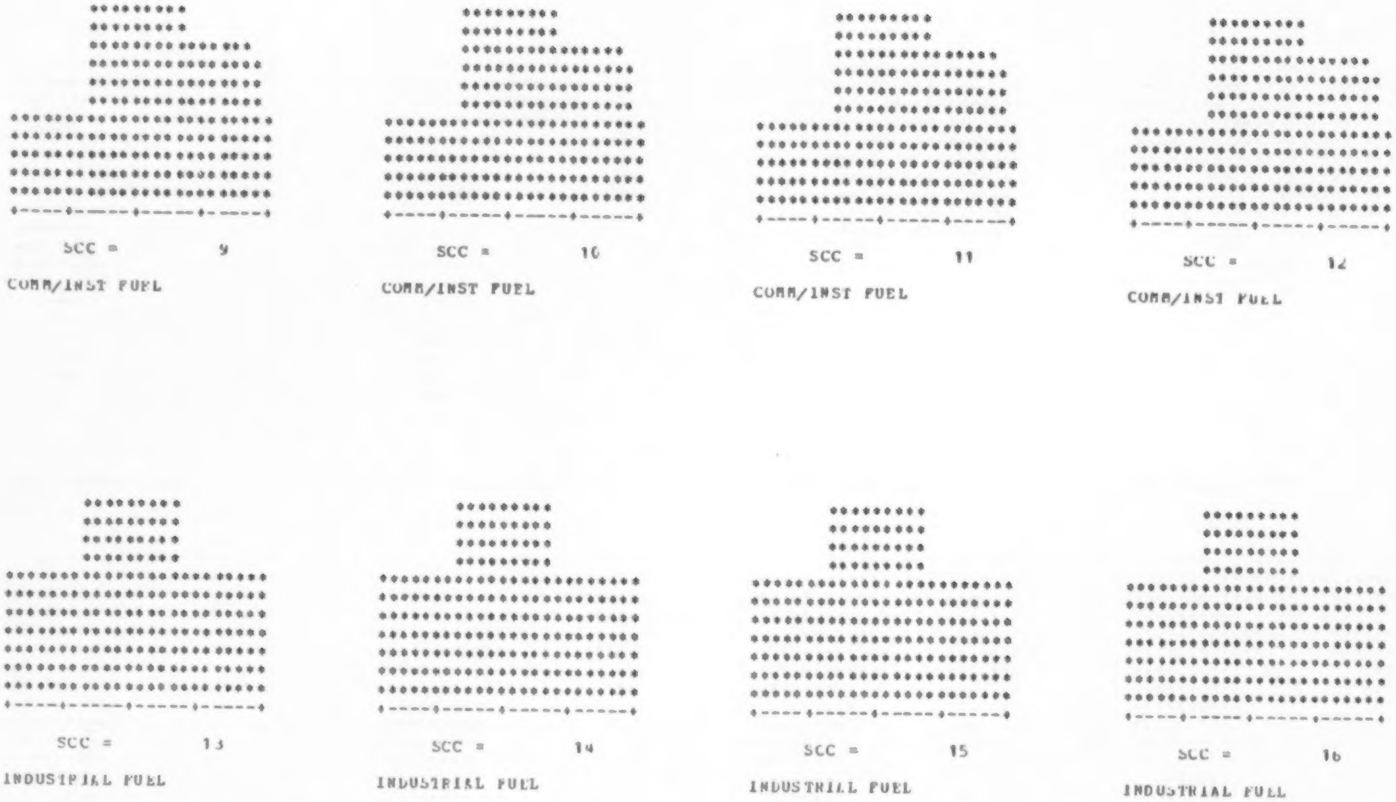


Figure C-4. Hourly emissions allocation patterns by area source category, average Sunday.

SUNDAY HOURLY MEANS


SCC = 9
COMM/INST FUEL

SCC = 10
COMM/INST FUEL

SCC = 11
COMM/INST FUEL

SCC = 12
COMM/INST FUEL

SCC = 13
INDUSTRIAL FUEL

SCC = 14
INDUSTRIAL FUEL

SCC = 15
INDUSTRIAL FUEL

SCC = 16
INDUSTRIAL FUEL

Figure C-4. (continued)

SUNDAY HOURLY MEANS

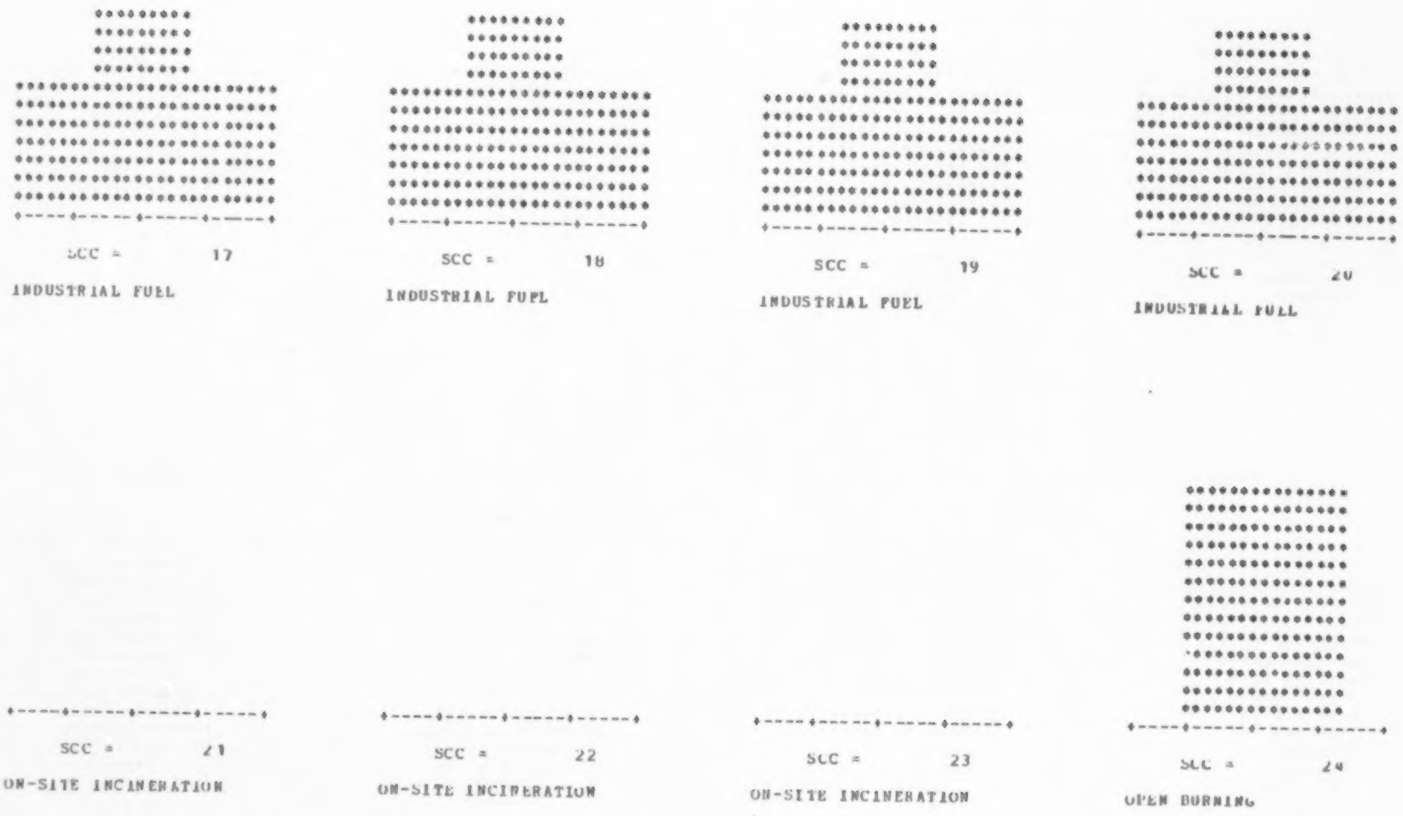


Figure C-4. (continued)

SUNDAY HOURLY MEANS

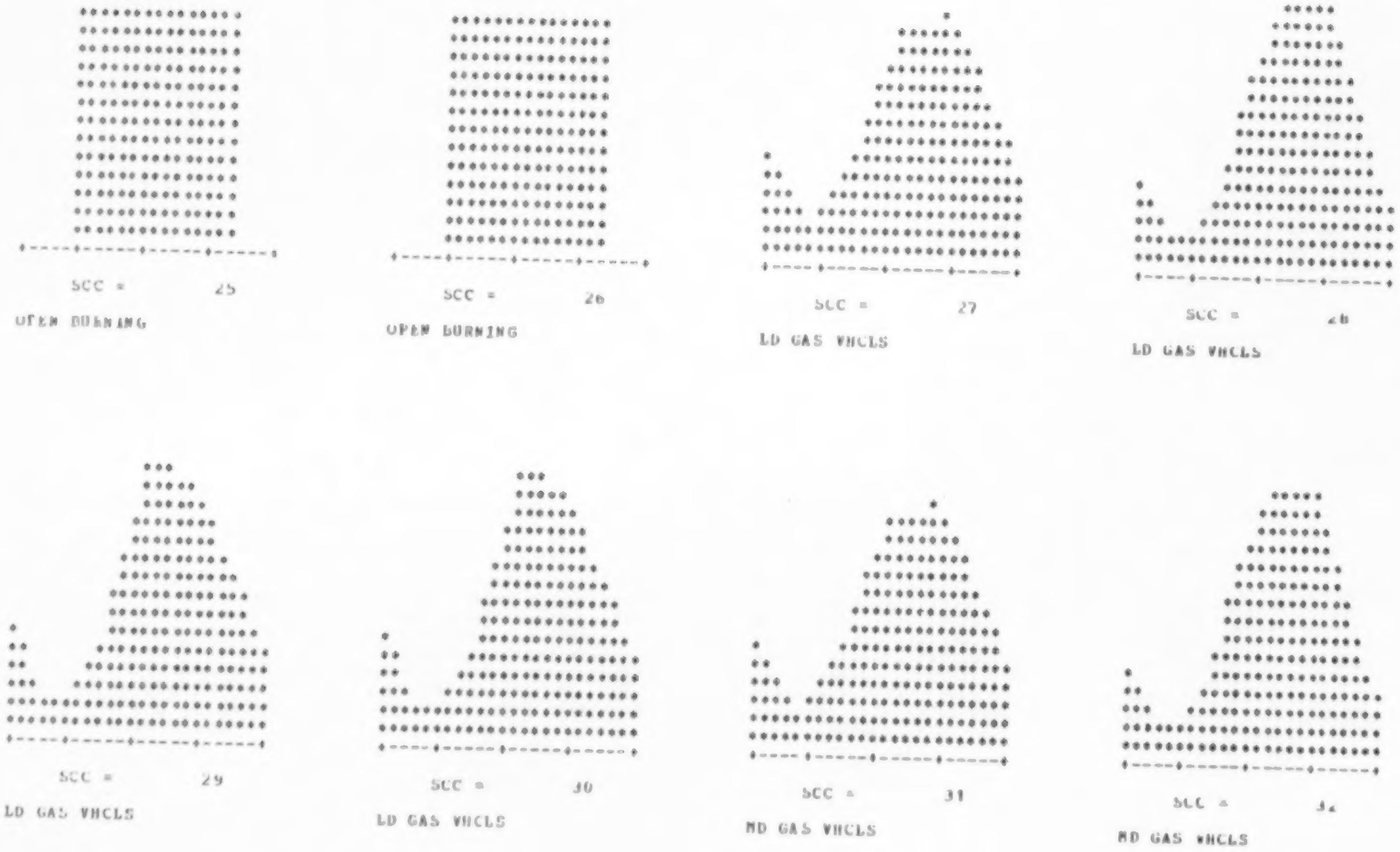
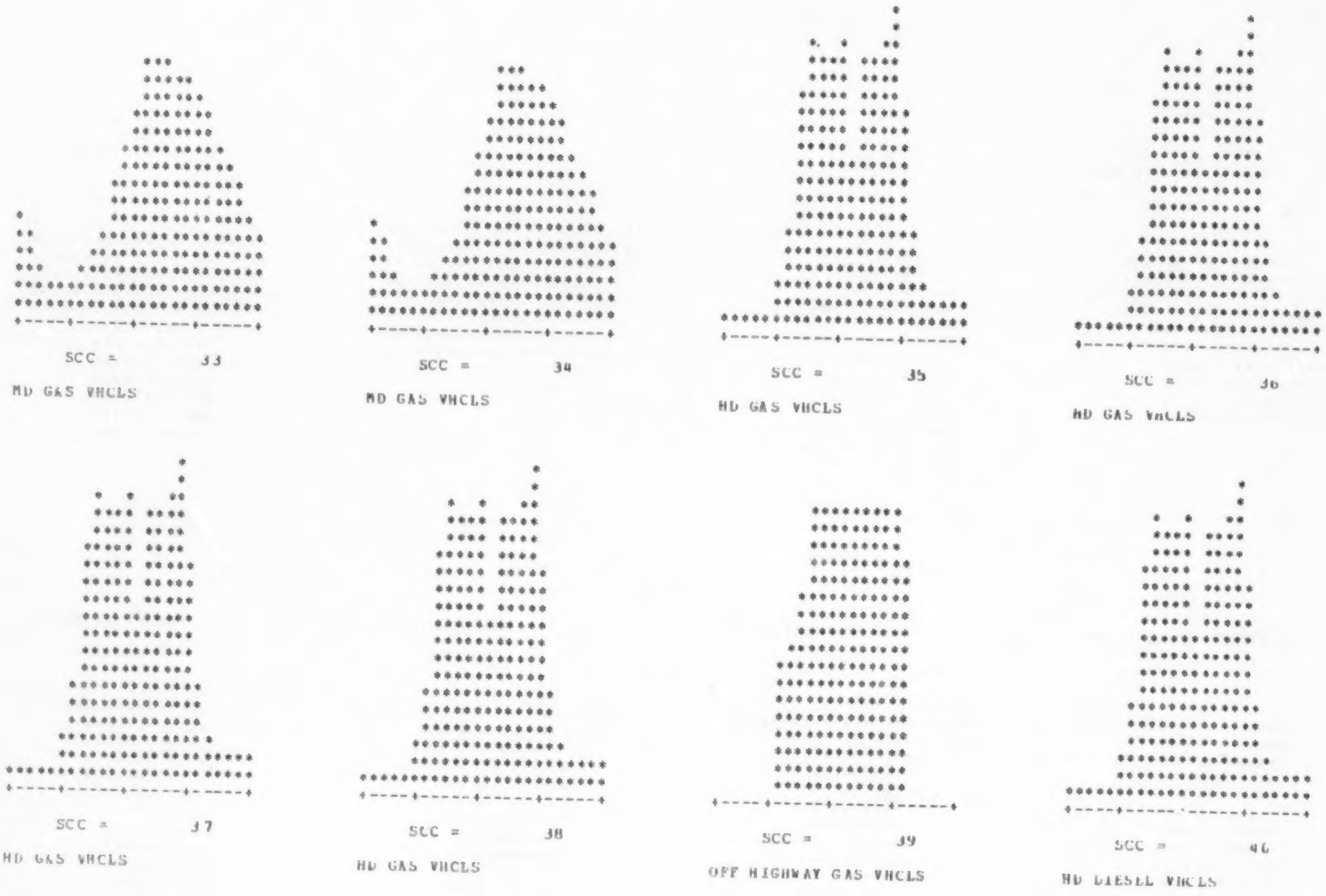


Figure C-4. (continued)

SUNDAY HOURLY MEANS



SCC = 33
HD GAS VHCLS

SCC = 34
HD GAS VHCLS

SCC = 35
HD GAS VHCLS

SCC = 36
HD GAS VHCLS

SCC = 37
HD GAS VHCLS

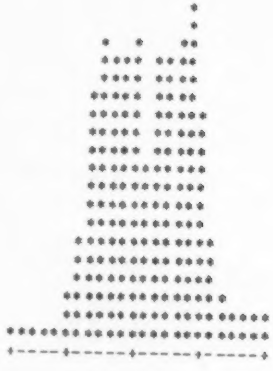
SCC = 38
HD GAS VHCLS

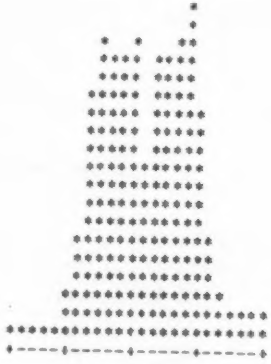
SCC = 39
OFF HIGHWAY GAS VHCLS

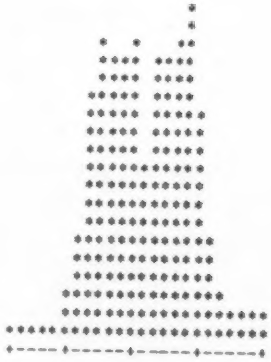
SCC = 40
HD DIESEL VHCLS

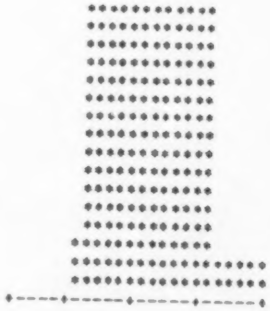
Figure C-4. (continued)

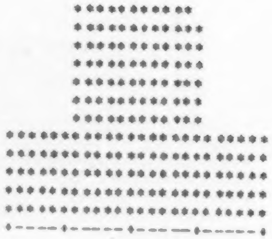
SUNDAY HOURLY MEANS

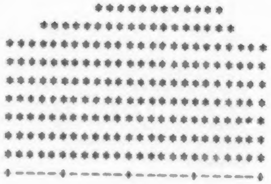


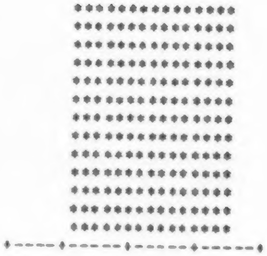












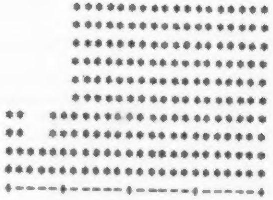
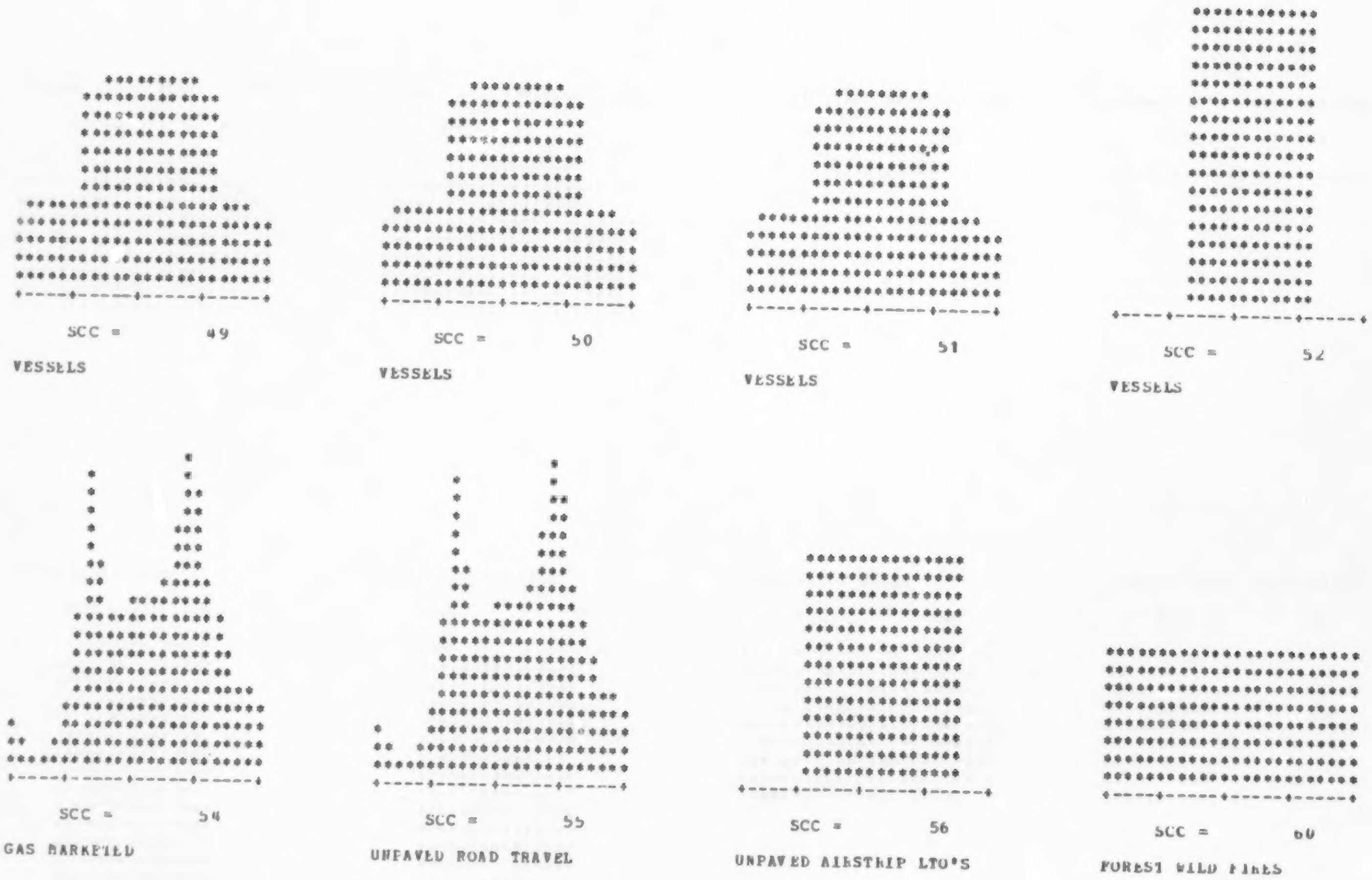


Figure C-4. (continued)

SUNDAY HOURLY MEANS



SCC = 49
VESSELS

SCC = 50
VESSELS

SCC = 51
VESSELS

SCC = 52
VESSELS

SCC = 54
GAS MARKETED

SCC = 55
UNPAVED ROAD TRAVEL

SCC = 56
UNPAVED AIRSTRIP LTO'S

SCC = 60
FOREST WILD FIRES

Figure C-4. (continued)

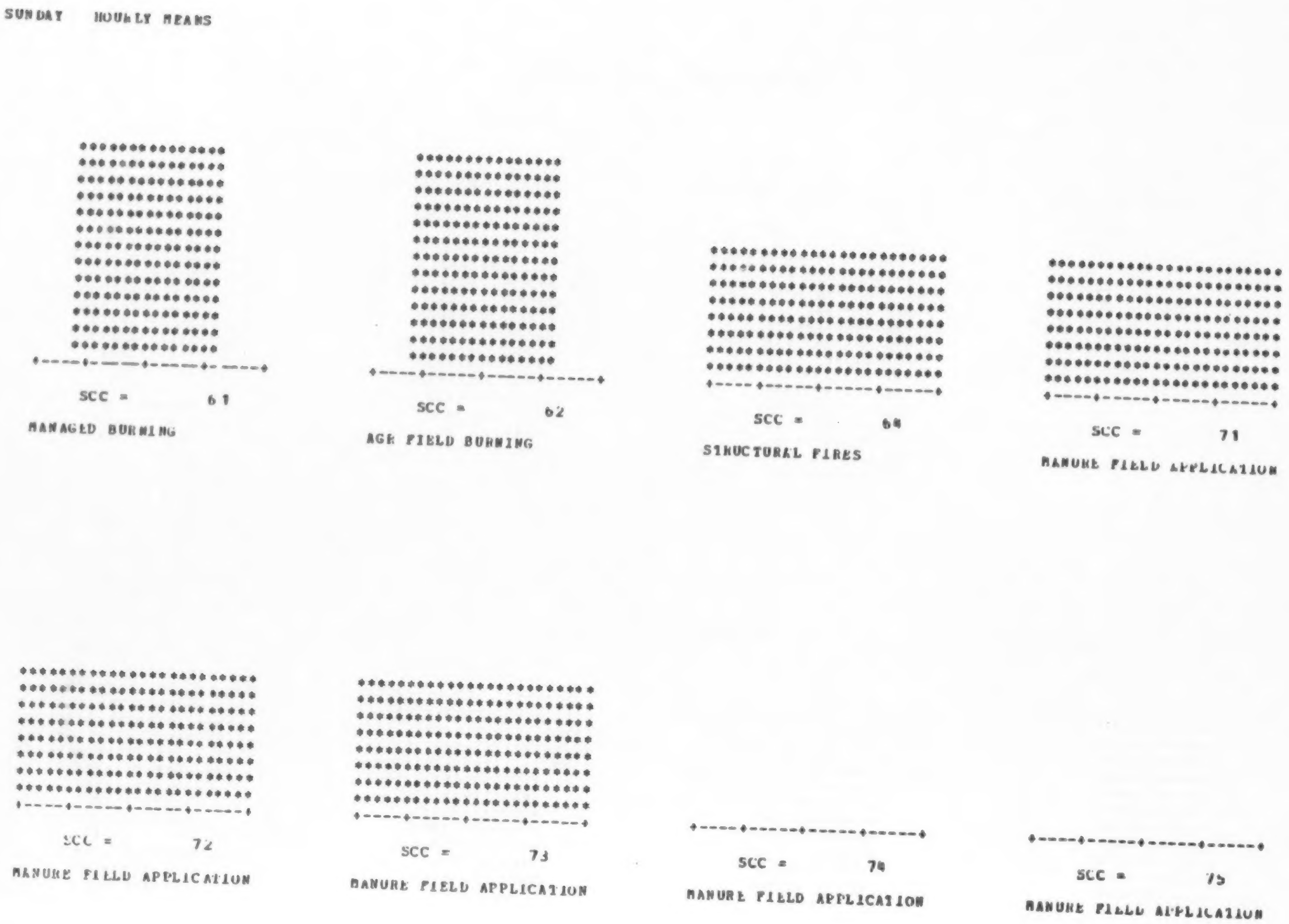
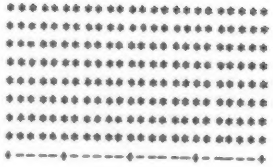
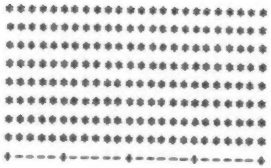


Figure C-4. (continued)

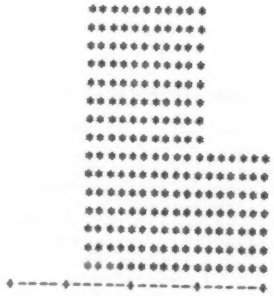
SUNDAY HOURLY MEANS


SCC = 76

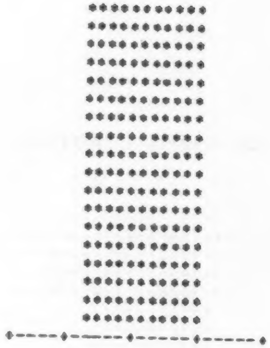
ANHDRS NH3FERT APPL


SCC = 77

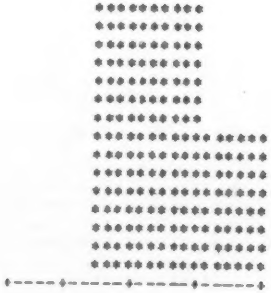
BEEF CATTLE FEED LOTS


SCC = 78

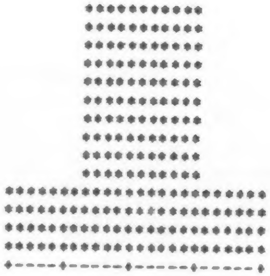
DEGREASING


SCC = 79

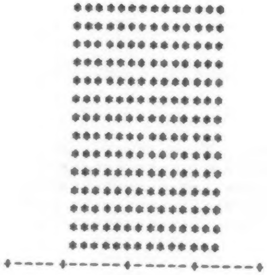
DRYCLEANING


SCC = 80

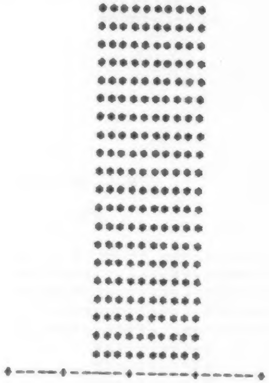
GRAPHIC ARTS


SCC = 81

RUBBER AND PLASTICS MFG


SCC = 82

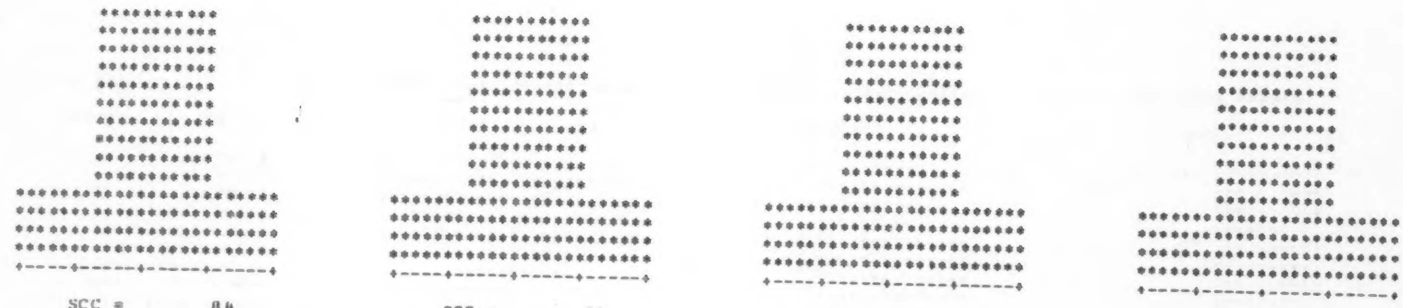
ARCHITECTURAL COATING


SCC = 83

AUTO BODY REPAIR

Figure C-4. (continued)

SUNDAY HOURLY MEANS

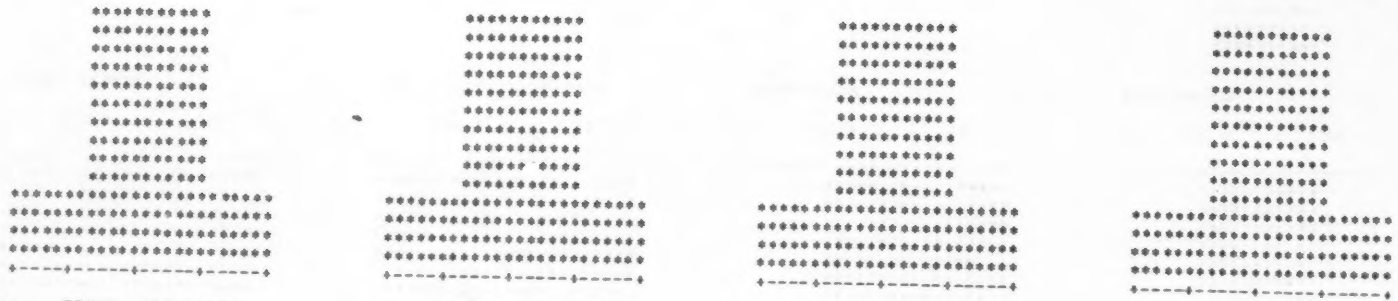


SCC = 84
MOTOR VEHICLE MFG

SCC = 85
PAPER COATING

SCC = 86
FABRICATED METALS

SCC = 87
MACHINERY MFG



SCC = 88
FURNITURE MFG

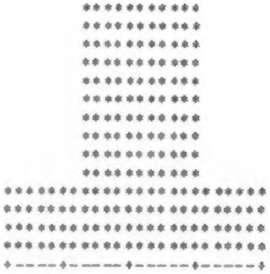
SCC = 89
FLAT WOOD PRODUCTS

SCC = 90
OTHER TRANS EQUIP MFG

SCC = 91
ELECTRICAL EQUIPMENT MFG

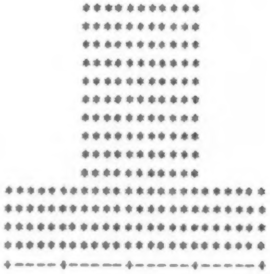
Figure C-4. (continued)

SUNDAY HOURLY MEANS



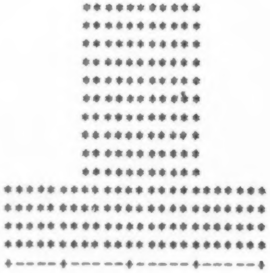
SCC = 92

SHIP BLDG AND REPAIR



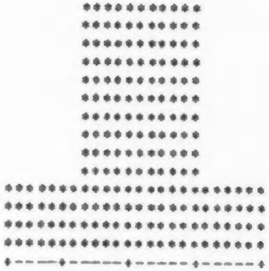
SCC = 93

MISC INDUSTRIAL MFG



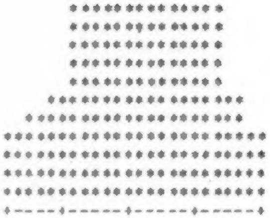
SCC = 94

MISC INDUST SOLVENT USE



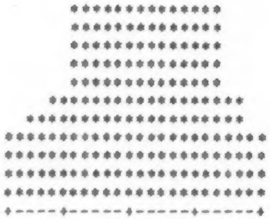
SCC = 95

MISC NONIND SOLVENT USE



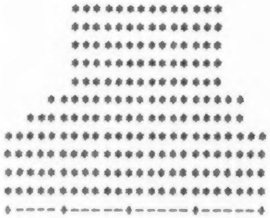
SCC = 96

MINOR UTILITIES - COAL



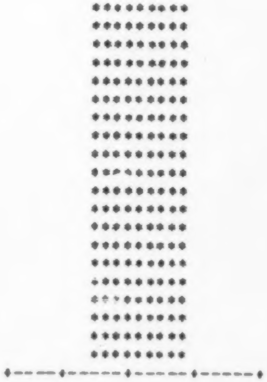
SCC = 97

MINOR UTILITIES - OIL



SCC = 98

MINOR UTILITIES - GAS



SCC = 99

MINOR POINT SOURCES

Figure C-4. (continued)

# APPENDIX D

# LISTING OF SOURCE CLASSIFICATION CODES FOR U.S. AND CANADIAN POINT AND AREA SOURCES

TABLE D-1. NEDS SOURCE CLASSIFICATION CODES FOR U.S. AND
CANADIAN POINT SOURCES (SIX-DIGIT LEVEL)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 101001 | EXTCOMB BOILER | ELECTRIC GENERATN | ANTHRACITE COAL |
| 101002 | EXTCOMB BOILER | ELECTRIC GENERATN | BITUMINOUS COAL |
| 101003 | EXTCOMB BOILER | ELECTRIC GENERATN | LIGNITE |
| 101004 | EXTCOMB BOILER | ELECTRIC GENERATN | RESIDUAL OIL |
| 101005 | EXTCOMB BOILER | ELECTRIC GENERATN | DISTILLATE OIL |
| 101006 | EXTCOMB BOILER | ELECTRIC GENERATN | NATURAL GAS |
| 101007 | EXTCOMB BOILER | ELECTRIC GENERATN | PROCESS GAS |
| 101008 | EXTCOMB BOILER | ELECTRIC GENERATN | COKE |
| 101009 | EXTCOMB BOILER | ELECTRIC GENERATN | WOOD/BARK WASTE |
| 101010 | EXTCOMB BOILER | ELECTRIC GENERATN | LIQ PETROLEUM GAS |
| 101011 | EXTCOMB BOILER | ELECTRIC GENERATN | BAGASSE |
| 101012 | EXTCOMB BOILER | ELECTRIC GENERATN | SLD WASTE-SPECIFY |
| 101013 | EXTCOMB BOILER | ELECTRIC GENERATN | LIQ WASTE-SPECIFY |
| 102001 | EXTCOMB BOILER | INDUSTRIAL | ANTHRACITE COAL |
| 102002 | EXTCOMB BOILER | INDUSTRIAL | BITUMINOUS COAL |
| 102003 | EXTCOMB BOILER | INDUSTRIAL | LIGNITE |
| 102004 | EXTCOMB BOILER | INDUSTRIAL | RESIDUAL OIL |
| 102005 | EXTCOMB BOILER | INDUSTRIAL | DISTILLATE OIL |
| 102006 | EXTCOMB BOILER | INDUSTRIAL | NATURAL GAS |
| 102007 | EXTCOMB BOILER | INDUSTRIAL | PROCESS GAS |
| 102008 | EXTCOMB BOILER | INDUSTRIAL | COKE |
| 102009 | EXTCOMB BOILER | INDUSTRIAL | WOOD/BARK WASTE |
| 102010 | EXTCOMB BOILER | INDUSTRIAL | LIQ PETROLEUM GAS |
| 102011 | EXTCOMB BOILER | INDUSTRIAL | BAGASSE |
| 102012 | EXTCOMB BOILER | INDUSTRIAL | SLD WASTE-SPECIFY |
| 102013 | EXTCOMB BOILER | INDUSTRIAL | LIQ WASTE-SPECIFY |
| 102014 | EXTCOMB BOILER | INDUSTRIAL | CO BOILER |
| 103001 | EXTCOMB BOILER | COMMERCL-INSTUTNL | ANTHRACITE COAL |
| 103002 | EXTCOMB BOILER | COMMERCL-INSTUTNL | BITUMINOUS COAL |
| 103003 | EXTCOMB BOILER | COMMERCL-INSTUTNL | LIGNITE |
| 103004 | EXTCOMB BOILER | COMMERCL-INSTUTNL | RESIDUAL OIL |
| 103005 | EXTCOMB BOILER | COMMERCL-INSTUTNL | DISTILLATE OIL |
| 103006 | EXTCOMB BOILER | COMMERCL-INSTUTNL | NATURAL GAS |
| 103007 | EXTCOMB BOILER | COMMERCL-INSTUTNL | PROCESS GAS |
| 103009 | EXTCOMB BOILER | COMMERCL-INSTUTNL | WOOD/BARK WASTE |
| 103010 | EXTCOMB BOILER | COMMERCL-INSTUTNL | LIQ PETROLEUM GAS |
| 103012 | EXTCOMB BOILER | COMMERCL-INSTUTNL | SLD WASTE-SPECIFY |
| 103013 | EXTCOMB BOILER | COMMERCL-INSTUTNL | LIQ WASTE-SPECIFY |
| 105001 | EXTCOMB BOILER | SPACE HEATER | INDUSTRIAL |
| 105002 | EXTCOMB BOILER | SPACE HEATER | COMMERCL-INSTUTNL |
| 201001 | INTERNLCOMBUSTION | ELECTRIC GENERATN | DIST.OIL/DIESEL |
| 201002 | INTERNLCOMBUSTION | ELECTRIC GENERATN | NATURAL GAS |
| 201009 | INTERNLCOMBUSTION | ELECTRIC GENERATN | KERONAPTHA JET FL |
| 201010 | INTERNLCOMBUSTION | ELECTRIC GENERATN | GEYSERS/GEOTHERML |
| 202001 | INTERNLCOMBUSTION | INDUSTRIAL | DIST.OIL/DIESEL |
| 202002 | INTERNLCOMBUSTION | INDUSTRIAL | NATURAL GAS |
| 202003 | INTERNLCOMBUSTION | INDUSTRIAL | GASOLINE |
| 202004 | INTERNLCOMBUSTION | INDUSTRIAL | LARGE BORE ENGINE |
| 202005 | INTERNLCOMBUSTION | INDUSTRIAL | RESIDUAL/CRUDEOIL |
| 202009 | INTERNLCOMBUSTION | INDUSTRIAL | KERONAPTHA JET FL |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 202010 | INTERNLCOMBUSTION | INDUSTRIAL | PROPANE |
| 203001 | INTERNLCOMBUSTION | COMMERCL-INSTUTNL | DIST.OIL/DIESEL |
| 203002 | INTERNLCOMBUSTION | COMMERCL-INSTUTNL | NATURAL GAS |
| 203003 | INTERNLCOMBUSTION | COMMERCL-INSTUTNL | GASOLINE |
| 203010 | INTERNLCOMBUSTION | COMMERCL-INSTUTNL | PROPANE |
| 204001 | INTERNLCOMBUSTION | ENGINE TESTING | AIRCRAFT |
| 204002 | INTERNLCOMBUSTION | ENGINE TESTING | ROCKET MOTOR |
| 204003 | INTERNLCOMBUSTION | ENGINE TESTING | TURBINE |
| 204004 | INTERNLCOMBUSTION | ENGINE TESTING | RECIPROCATING |
| 288888 | INTERNLCOMBUSTION | FUGITIVE EMISSION | NOT CLASSIFIED |
| 301001 | CHEMICAL MFG | ORGANIC CHEMICALS | ADIPIC ACID PROD |
| 301003 | CHEMICAL MFG | AGRICULTURAL CHEM | AMMONIA |
| 301005 | CHEMICAL MFG | CARBON BLACK | CHANNEL PROCESS |
| 301006 | CHEMICAL MFG | ORGANIC CHEMICALS | CHARCOAL |
| 301007 | CHEMICAL MFG | INORGANIC CHEMCLS | CHLORINE |
| 301008 | CHEMICAL MFG | INORGANIC CHEMCLS | CHLORO-ALKALI |
| 301009 | CHEMICAL MFG | SOAP/DETERGENTS | SOAP/DETERGENTS |
| 301010 | CHEMICAL MFG | EXPLOSIVES | TRINITROTOLUENE |
| 301011 | CHEMICAL MFG | INORGANIC CHEMCLS | HYDROCHLORIC ACID |
| 301012 | CHEMICAL MFG | INORGANIC CHEMCLS | HYDROFLUORIC ACID |
| 301013 | CHEMICAL MFG | AGRICULTURAL CHEM | NITRIC ACID |
| 301014 | CHEMICAL MFG | PAINT MFG | MIXING/BLENDING |
| 301015 | CHEMICAL MFG | VARNISH MFG | BODYING OIL |
| 301016 | CHEMICAL MFG | AGRICULTURAL CHEM | PHOS ACD/WET PROC |
| 301017 | CHEMICAL MFG | AGRICULTURAL CHEM | PHOS ACID THERMAL |
| 301018 | CHEMICAL MFG | PLASTICS PRODN | POLYVINYL CHLORID |
| 301019 | CHEMICAL MFG | ORGANIC CHEMICALS | PHTHALIC ANHYDRID |
| 301020 | CHEMICAL MFG | PRINTING INK MFG | VEHICLE COOKING |
| 301021 | CHEMICAL MFG | INORGANIC CHEMCLS | SODIUM CARBONATE |
| 301022 | CHEMICAL MFG | INORGANIC CHEMCLS | H2S04-CHAMBER |
| 301023 | CHEMICAL MFG | INORGANIC CHEMCLS | H2S04-CONTACT |
| 301024 | CHEMICAL MFG | PLASTICS PRODN | SYNTHC ORGNC FIBR |
| 301025 | CHEMICAL MFG | PLASTICS PRODN | CELLULOSIC FIBER |
| 301026 | CHEMICAL MFG | PLASTICS PRODN | SYNTHETIC RUBBER |
| 301027 | CHEMICAL MFG | AGRICULTURAL CHEM | FERTILIZ AMONNITR |
| 301028 | CHEMICAL MFG | AGRICULTURAL CHEM | NRM SPRPHSPHATE |
| 301029 | CHEMICAL MFG | AGRICULTURAL CHEM | TRPL SPRPHSPHATE |
| 301030 | CHEMICAL MFG | AGRICULTURAL CHEM | AMMONM PHOSPHATES |
| 301031 | CHEMICAL MFG | ORGANIC CHEMICALS | TEREPHTHALIC ACID |
| 301032 | CHEMICAL MFG | INORGANIC CHEMCLS | SULFUR(ELEMENTAL) |
| 301033 | CHEMICAL MFG | AGRICULTURAL CHEM | PESTICIDES |
| 301034 | CHEMICAL MFG | ORGANIC CHEMICALS | ANILINE |
| 301035 | CHEMICAL MFG | INORGANIC CHEMCLS | TI02 PIGMENT |
| 301038 | CHEMICAL MFG | INORGANIC CHEMCLS | SODIUM BICARBNATE |
| 301039 | CHEMICAL MFG | INORGANIC CHEMCLS | HYDROGEN CYANIDE |
| 301040 | CHEMICAL MFG | AGRICULTURAL CHEM | UREA |
| 301041 | CHEMICAL MFG | EXPLOSIVES | NITROCELLULOSE |
| 301042 | CHEMICAL MFG | ORGANIC CHEMICALS | LEAD ALKYL-NA/PB |
| 301043 | CHEMICAL MFG | ORGANIC CHEMICALS | LEAD ALKYLS |
| 301045 | CHEMICAL MFG | AGRICULTURAL CHEM | ORGANIC FERTILIZR |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 301050 | CHEMICAL MFG | ORGANIC CHEMICALS | ADHESIVES |
| 301060 | CHEMICAL MFG | PHARMACEUTICALS | GENERAL PROCESSES |
| 301070 | CHEMICAL MFG | INORGANIC CHEMCLS | GENERAL PROCESSES |
| 301091 | CHEMICAL MFG | ORGANIC CHEMICALS | KETONE PRODUCTION |
| 301100 | CHEMICAL MFG | ORGANIC CHEMICALS | MALEIC ANHYDRIDE |
| 301111 | CHEMICAL MFG | INORGANIC CHEMCLS | ASBESTOS CHEMICAL |
| 301120 | CHEMICAL MFG | ORGANIC CHEMICALS | FORMALDEHYDE |
| 301121 | CHEMICAL MFG | ORGANIC CHEMICALS | ORGNC DYE/PIGMENT |
| 301124 | CHEMICAL MFG | ORGANIC CHEMICALS | CHLOROPRENE |
| 301125 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHYLENE DICHLORD |
| 301126 | CHEMICAL MFG | ORGANIC CHEMICALS | ORGANOHALOGENS |
| 301127 | CHEMICAL MFG | ORGANIC CHEMICALS | FLUOROCARBONS |
| 301130 | CHEMICAL MFG | AGRICULTURAL CHEM | AMMONIUM SULFATE |
| 301132 | CHEMICAL MFG | ORGANIC CHEMICALS | ORGANIC ACIDS PRD |
| 301133 | CHEMICAL MFG | ORGANIC CHEMICALS | ACETIC ANHYDRIDE |
| 301137 | CHEMICAL MFG | ORGANIC CHEMICALS | ESTERS PRODUCTN |
| 301140 | CHEMICAL MFG | ORGANIC CHEMICALS | ACETYLENE PRODN |
| 301152 | CHEMICAL MFG | ORGANIC CHEMICALS | BISPHENOL A |
| 301153 | CHEMICAL MFG | ORGANIC CHEMICALS | BUTADIENE |
| 301156 | CHEMICAL MFG | ORGANIC CHEMICALS | CUMENE |
| 301157 | CHEMICAL MFG | ORGANIC CHEMICALS | CYCLOHEXANE |
| 301158 | CHEMICAL MFG | ORGANIC CHEMICALS | CYCLOHEXANONE/CYC |
| 301167 | CHEMICAL MFG | ORGANIC CHEMICALS | VINYL ACETATE |
| 301169 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHYLBENZENE |
| 301174 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHYLENE OXIDE |
| 301176 | CHEMICAL MFG | ORGANIC CHEMICALS | GLYCERIN(GLYCERL) |
| 301181 | CHEMICAL MFG | ORGANIC CHEMICALS | TOLUENE DIISOCYNT |
| 301190 | CHEMICAL MFG | ORGANIC CHEMICALS | METHYL METHACRYLT |
| 301195 | CHEMICAL MFG | ORGANIC CHEMICALS | NITROBENZENE |
| 301197 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHYLENE PRODCTN |
| 301202 | CHEMICAL MFG | ORGANIC CHEMICALS | PHENOL |
| 301205 | CHEMICAL MFG | ORGANIC CHEMICALS | PROPYLENE OXIDE |
| 301206 | CHEMICAL MFG | ORGANIC CHEMICALS | STYRENE |
| 301210 | CHEMICAL MFG | ORGANIC CHEMICALS | CAPROLACTUM |
| 301211 | CHEMICAL MFG | ORGANIC CHEMICALS | LINEAR ALKYLBENZE |
| 301250 | CHEMICAL MFG | ORGANIC CHEMICALS | METHANOL PRODCTN |
| 301251 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHYLENE GLYCOL |
| 301252 | CHEMICAL MFG | ORGANIC CHEMICALS | ETHERS |
| 301253 | CHEMICAL MFG | ORGANIC CHEMICALS | GLYCOL ETHERS |
| 301254 | CHEMICAL MFG | ORGANIC CHEMICALS | NITRILES PROD |
| 301258 | CHEMICAL MFG | ORGANIC CHEMICALS | BENZENE |
| 301301 | CHEMICAL MFG | ORGANIC CHEMICALS | CHLOROBENZENE |
| 301302 | CHEMICAL MFG | ORGANIC CHEMICALS | CARBON TETRACHLOR |
| 301303 | CHEMICAL MFG | ORGANIC CHEMICALS | ALLYL CHLORIDE |
| 301304 | CHEMICAL MFG | ORGANIC CHEMICALS | ALLYL ALCOHOL |
| 301305 | CHEMICAL MFG | ORGANIC CHEMICALS | EPICHLOROHYDRIN |
| 301800 | CHEMICAL MFG | ORGANIC CHEMICALS | GENERAL PROCESSES |
| 301810 | CHEMICAL MFG | ORGANIC CHEMICALS | GENERAL PROCESSES |
| 301820 | CHEMICAL MFG | ORGANIC CHEMICALS | GENERAL PROCESSES |
| 301830 | CHEMICAL MFG | ORGANIC CHEMICALS | GENERAL PROCESSES |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 301840 | CHEMICAL MFG | ORGANIC CHEMICALS | GENERAL PROCESSES |
| 301870 | INORGNC CHEM STRG | FIXED ROOF TANKS | HYDROCHLORIC ACID |
| 301875 | INORGNC CHEM STRG | FLOAT ROOF TANKS | CARBON DISULFIDE |
| 301885 | INORGNC CHEM STRG | PRESSURE TANKS | AMMONIA |
| 301888 | CHEMICAL MFG | FUGITIVE EMISSION | NOT CLASSIFIED |
| 301900 | CHEMICAL MFG | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 301999 | CHEMICAL MFG | MISCELLANEOUS | NOT CLASSIFIED |
| 302001 | FOOD/AGRICULTURE | ALFALFA DEHYDRATI | GENERAL |
| 302002 | FOOD/AGRICULTURE | COFFEE ROASTING | ROASTER |
| 302003 | FOOD/AGRICULTURE | COFFEE PRODUCTS | INSTANT COFFEE |
| 302004 | FOOD/AGRICULTURE | AGRIC. SERVICES | COTTON GINNING |
| 302005 | FOOD/AGRICULTURE | GRAIN ELEVATORS | TERMINAL ELEVATOR |
| 302006 | FOOD/AGRICULTURE | GRAIN ELEVATORS | COUNTRY ELEVATORS |
| 302007 | FOOD/AGRICULTURE | GRAIN MILLING | CORN MEAL |
| 302008 | FOOD/AGRICULTURE | FEED MANUFACTURE | BARLEY FEED |
| 302009 | FOOD/AGRICULTURE | FERMENTATION | BEER PRODUCTION |
| 302010 | FOOD/AGRICULTURE | FERMENTATION | WHISKEY PRODUCTN |
| 302011 | FOOD/AGRICULTURE | FERMENTATION | WINE PRODUCTION |
| 302012 | FOOD/AGRICULTURE | FISH PROCESSING | FISH MEAL |
| 302013 | FOOD/AGRICULTURE | MEAT SMOKING | COMBINED OPERATNS |
| 302014 | FOOD/AGRICULTURE | STARCH MFG | COMBINED OPERATNS |
| 302015 | FOOD/AGRICULTURE | SUGAR CANE PROCES | GENERAL |
| 302016 | FOOD/AGRICULTURE | SUGAR BEET PROCES | DRYER |
| 302017 | FOOD/AGRICULTURE | PEANUT PROCESSING | NOT CLASSIFIED |
| 302018 | FOOD/AGRICULTURE | CANDY MANUFACTURE | NOT CLASSIFIED |
| 302019 | FOOD/AGRICULTURE | VEG OIL PROCESSNG | CORN OIL |
| 302020 | FOOD/AGRICULTURE | AGRIC.PRODUCTION | BEEF CATTLE |
| 302021 | FOOD/AGRICULTURE | POULTRY/EGG PROD | MANURE HANDLING |
| 302022 | FOOD/AGRICULTURE | AGRIC.PRODUCTION | COTTON-ACID DELIN |
| 302026 | FOOD/AGRICULTURE | AGRIC.PRODUCTION | SEED PROCESSING |
| 302028 | FOOD/AGRICULTURE | AGRIC.PRODUCTION | MUSHROOM GROWING |
| 302030 | FOOD/AGRICULTURE | DAIRY PRODUCTS | MILK |
| 302031 | FOOD/AGRICULTURE | GRAIN ELEVATORS | EXPORT GRAIN ELEV |
| 302032 | FOOD/AGRICULTURE | BAKERIES | BREAD BAKING |
| 302033 | FOOD/AGRICULTURE | TOBACCO PRODUCTS | NOT CLASSIFIED |
| 302036 | FOOD/AGRICULTURE | DEEP FAT FRYING | COOKING VATS |
| 302038 | FOOD/AGRICULTURE | ANIMAL/POLTRY RND | RENDERING |
| 302888 | FOOD/AGRICULTURE | FUGITIVE EMISSION | NOT CLASSIFIED |
| 302900 | FOOD/AGRICULTURE | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 302999 | FOOD/AGRICULTURE | MISCELLANEOUS | NOT CLASSIFIED |
| 303000 | MINING OPERATIONS | METAL ORE MINING | BAUXITE |
| 303001 | PRIMARY METALS | ALUMINUM | ELECTRO-REDUCTION |
| 303002 | PRIMARY METALS | ALUMINUM | HYDROXIDE CALCING |
| 303003 | PRIMARY METALS | IRON & STEEL | BY-PRODUCT COKE |
| 303004 | PRIMARY METALS | IRON & STEEL | BEEHIVE COKE |
| 303005 | PRIMARY METALS | COPPER SMELTING | MULTIPLE HEARTH |
| 303006 | PRIMARY METALS | FERROALLOY | OPEN FURNACE |
| 303007 | PRIMARY METALS | FERROALLOY | SEMICOVERED FURNC |
| 303008 | PRIMARY METALS | IRON & STEEL | BLAST FURNACE |
| 303009 | PRIMARY METALS | IRON & STEEL | STEEL FURNACES |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 303010 | PRIMARY METALS | LEAD SMELTING | SINTERING |
| 303011 | MINING OPERATIONS | METAL ORE MINING | MOLYBEDENUM |
| 303012 | MINING OPERATIONS | METAL ORE MINING | TITANIUM ORE |
| 303013 | MINING OPERATIONS | METAL ORE MINING | GOLD MINING |
| 303014 | MINING OPERATIONS | METAL ORE MINING | BARIUM ORE |
| 303023 | MINING OPERATIONS | METAL ORE MINING | TACONITE IRON ORE |
| 303024 | MINING OPERATIONS | METAL ORE MINING | LOW MOISTURE ORE |
| 303030 | PRIMARY METALS | ZINC SMELTING | ROASTING |
| 303888 | PRIMARY METALS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 303900 | PRIMARY METALS | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 303999 | PRIMARY METALS | MISCELLANEOUS | NOT CLASSIFIED |
| 304001 | SECONDARY METALS | SEC. ALUMINUM | SWEATING FURNACE |
| 304002 | SECONDARY METALS | SEC. COPPER | ELEC INDUCTION FN |
| 304003 | PRIMARY METALS | IRON/STEEL FOUNDY | GRAY IRON FOUNDRY |
| 304004 | SECONDARY METALS | SEC. LEAD | KETTLE REFINING |
| 304005 | ELECTRICAL EQPMNT | LEAD BATTERY MFG | OVERALL PROCESS |
| 304006 | PRIMARY METALS | MAGNESIUM | POT FURNACE |
| 304007 | PRIMARY METALS | IRON/STEEL FOUNDY | STEEL FOUNDRY |
| 304008 | SECONDARY METALS | SECONDARY ZINC | RETORT FURNACE |
| 304009 | PRIMARY METALS | IRON/STEEL FOUNDY | MALLEABLE IRON |
| 304010 | PRIMARY METALS | NICKEL | FLUX FURNACE |
| 304020 | ELECTRICAL EQPMNT | FURNACE ELECTRODE | CALCINATION |
| 304022 | SECONDARY METALS | METAL HEAT TREATG | FURNACE |
| 304040 | SECONDARY METALS | METALLIC COATING | LEAD CABLE COATNG |
| 304049 | SECONDARY METALS | MISC CAST/FABRCTN | WAX BURNOUT OVEN |
| 304050 | SECONDARY METALS | MISC CAST/FABRCTN | NOT CLASSIFIED |
| 304888 | SECONDARY METALS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 304900 | SECONDARY METALS | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 304999 | SECONDARY METALS | MISCELLNNEOUS | NOT CLASSIFIED |
| 305001 | PETROLEUM INDRY | ASPHALT ROOFING | ASPHALT BLOWING |
| 305002 | PETROLEUM INDRY | ASPHALT CONCRETE | ROTARY DRYER |
| 305003 | MINERAL PRODUCTS | BRICK MFG | RAW MATERIAL |
| 305004 | MINERAL PRODUCTS | CALCIUM CARBIDE | ELECTRIC FURNACE |
| 305005 | MINERAL PRODUCTS | CASTABLE REFRACTY | RAW MATERIAL |
| 305006 | MINERAL PRODUCTS | CEMENT MFG | DRY PROCESS |
| 305007 | MINERAL PRODUCTS | CEMENT MFG | WET PROCESS |
| 305008 | MINERAL PRODUCTS | CERAMIC CLAY MFG | DRYING |
| 305009 | MINERAL PRODUCTS | CLAY/FLYASH SINTR | FLYASH |
| 305010 | MINING OPERATIONS | COAL CLEANING | THERMAL DRYER |
| 305011 | MINERAL PRODUCTS | CONCRETE BATCHING | GENERAL |
| 305012 | MINERAL PRODUCTS | FIBERGLASS | WOOL-TYPE FIBER |
| 305013 | MINERAL PRODUCTS | FRIT MFG | ROTARY FURNACE |
| 305014 | MINERAL PRODUCTS | GLASS MFG | SODA LIME |
| 305015 | MINERAL PRODUCTS | GYPSUM MFG | ROTARY ORE DRYER |
| 305016 | MINERAL PRODUCTS | LIME MFG | PRIMARY CRUSHING |
| 305017 | MINERAL PRODUCTS | MINERAL WOOL | CUPOLA |
| 305018 | MINERAL PRODUCTS | PERLITE MFG | VERTICAL FURNACE |
| 305019 | MINING OPERATIONS | NONMETALLIC MINRL | PHOSPHATE ROCK |
| 305020 | MINING OPERATIONS | NONMETALLIC MINRL | STONE QUARRYING |
| 305021 | MINING OPERATIONS | NONMETALLIC MINRL | SALT MINING |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 305022 | MINING OPERATIONS | NONMETALLIC MINRL | POTASH PRODUCTION |
| 305024 | MINING OPERATIONS | NONMETALLIC MINRL | MAGNESIUM CRBNATE |
| 305025 | MINING OPERATIONS | NONMETALLIC MINRL | SAND/GRAVEL |
| 305026 | MINING OPERATIONS | NONMETALLIC MINRL | DIATOMACOUS EARTH |
| 305030 | MINERAL PRODUCTS | CERAMIC ELEC PRTS | NOT CLASSIFIED |
| 305031 | MINING OPERATIONS | NONMETALLIC MINRL | ASBESTOS MINING |
| 305032 | MINING OPERATIONS | NONMETALLIC MINRL | ASBESTOS MILLING |
| 305033 | MINING OPERATIONS | NONMETALLIC MINRL | VERMICULITE |
| 305040 | MINING OPERATIONS | UNSPECIFIED ORE | SEE COMMENT |
| 305100 | MINERAL PRODUCTS | BULK MATERIALS | ELEVATORS |
| 305101 | MINERAL PRODUCTS | BULK MATERIALS | CONVEYORS |
| 305102 | MINERAL PRODUCTS | BULK MATERIALS | STOAGE BINS |
| 305103 | MINERAL PRODUCTS | BULK MATERIALS | OPEN STOCKPILES |
| 305104 | MINERAL PRODUCTS | BULK MATERIALS | UNLOADING OPERATN |
| 305105 | MINERAL PRODUCTS | BULK MATERIALS | LOADING OPERATION |
| 305150 | MINERAL PRODUCTS | NONMETALLIC MINRL | CALCINING-GENERAL |
| 305888 | MINERAL PRODUCTS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 305900 | MINERAL PRODUCTS | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 305999 | MINERAL PRODUCTS | MISCELLANEOUS | NOT CLASSIFIED |
| 306001 | PETROLEUM INDRY | PETROLEUM REFNG | PROCESS HEATERS |
| 306002 | PETROLEUM INDRY | PETROLEUM REFNG | CATALYTIC CRACKNG |
| 306003 | PETROLEUM INDRY | PETROLEUM REFNG | CATALYTIC CRACKNG |
| 306004 | PETROLEUM INDRY | PETROLEUM REFNG | BLOWDOWN SYSTEM |
| 306005 | PETROLEUM INDRY | FUGITIVE HC EMIS | PROCESS DRAINS |
| 306006 | PETROLEUM INDRY | PETROLEUM REFNG | VACUUM DISTILATN |
| 306007 | PETROLEUM INDRY | PETROLEUM REFNG | COOLING TOWERS |
| 306008 | PETROLEUM INDRY | FUGITIVE HC EMIS | PIPELINE |
| 306009 | PETROLEUM INDRY | PETROLEUM REFNG | FLARES |
| 306010 | PETROLEUM INDRY | PETROLEUM REFNG | SLUDGE CONVERTER |
| 306011 | PETROLEUM INDRY | PETROLEUM REFNG | ASPHALT BLOWING |
| 306012 | PETROLEUM INDRY | PETROLEUM REFNG | FLUID COKING |
| 306014 | PETROLEUM INDRY | PETROLEUM REFNG | PETROLEUM COKE |
| 306015 | PETROLEUM INDRY | PETROLEUM REFNG | BAUXITE BURNING |
| 306099 | PETROLEUM INDRY | PETROLEUM REFNG | INCINERATORS |
| 306100 | PETROLEUM INDRY | LUBE OIL MFG | GENERAL |
| 306888 | PETROLEUM INDRY | FUGITIVE EMISSION | NOT CLASSIFIED |
| 306999 | PETROLEUM INDRY | MISCELLANEOUS | NOT CLASSIFIED |
| 307001 | PULP & PAPER | KRAFT PULPING | DIGESTOR/BLOW TNK |
| 307002 | PULP & PAPER | SULFITE PULPING | DIGESTER/BLOW PIT |
| 307003 | PULP & PAPER | SEMICHEMICAL PULP | DIGESTER/BLOW PIT |
| 307004 | PULP & PAPER | PULPBOARD | PAPERBOARD |
| 307005 | WOOD PRODUCTS | WOOD PRESS TREAT | CREOSOTE |
| 307007 | WOOD PRODUCTS | PLYWOOD/PARTBOARD | VENEER DRYERS |
| 307008 | WOOD PRODUCTS | SAWMILL OPERATION | LOG DEBARKING |
| 307011 | PULP & PAPER | PAPER COATING | EXTRUSION COATING |
| 307013 | PULP & PAPER | MISC. PAPER PROD | INSULATION FROM |
| 307020 | WOOD PRODUCTS | FURNITURE MFG | NOT CLASSIFIED |
| 307030 | WOOD PRODUCTS | MISCELLANEOUS | WOODWASTE STORAGE |
| 307888 | WOOD PRODUCTS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 307900 | WOOD PRODUCTS | FUEL FIRED EQPMNT | PROCESS HEATERS |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 307999 | WOOD PRODUCTS | MISCELLANEOUS | NOT CLASSIFIED |
| 308001 | RUBBER/PLASTICS | TIRE MFG | UNDERTREAD & SIDE |
| 308005 | RUBBER/PLASTICS | TIRE RETREADING | TIRE BUFFING |
| 308006 | RUBBER/PLASTICS | MISC.RUBBER PROD | NOT CLASSIFIED |
| 308007 | RUBBER/PLASTICS | FAB. PLASTIC PROD | PLASTICS MACHINNG |
| 308900 | RUBBER/PLASTICS | FUEL FIRED EQPMNT | PROCESS HEATERS |
| 308999 | RUBBER/PLASTICS | MISCELLANEOUS | NOT CLASSIFIED |
| 309001 | FABRICATED METALS | IRON/STEEL | NOT CLASSIFIED |
| 309002 | FABRICATED METALS | ABRASIVE BLASTING | OF METAL PARTS |
| 309003 | FABRICATED METALS | ABRASIVE CLEANING | OF METAL PARTS |
| 309010 | FABRICATED METALS | ELECTROPLATING | ENTIRE PROCESS |
| 309011 | FABRICATED METALS | CONVERSION COATNG | ALKALINE CLEANING |
| 309015 | FABRICATED METALS | CHEMICAL MILLING | OF METAL PARTS |
| 309016 | FABRICATED METALS | PIPE COATING | ASPHALT DIPPING |
| 309020 | FABRICATED METALS | CAN MAKING OPRNS | NOT CLASSIFIED |
| 309025 | FABRICATED METALS | DRUMS/BARRELS | DRUM CLEANING |
| 309030 | FABRICATED METALS | MACHINING OPRNS | GRINDING |
| 309040 | FABRICATED METALS | METAL DEPOSITION | METALLIZING(WIRE |
| 309060 | FABRICATED METALS | PORCELAIN ENAMEL/ | CERAMIC GLAZE |
| 309888 | FABRICATED METALS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 309900 | FABRICATED METALS | FUEL FIRED EQPMNT | PROCESS HEATERS |
| 309999 | FABRICATED METALS | MISCELLANEOUS | NOT CLASSIFIED |
| 310001 | OIL & GAS PRODN | CRUDE OIL PRODN | COMPLETE WELL |
| 310002 | OIL & GAS PRODN | NATURAL GAS PRODN | GAS SWEETENING |
| 310004 | OIL & GAS PRODN | FUEL-FIRED EQPMNT | PROCESS HEATERS |
| 310888 | OIL & GAS PRODN | FUGITIVE EMISSION | NOT CLASSIFIED |
| 311001 | CONSTRUCTION | BLDG CONTRACTORS | NOT CLASSIFIED |
| 311002 | CONSTRUCTION | SPL TRADE CONTRCT | NOT CLASSIFIED |
| 312999 | MACHINERY | MISCELLANEOUS | NOT CLASSIFIED |
| 313070 | ELECTRICAL EQPMNT | WINDINGS RECLAMTN | INCINERATOR OVEN |
| 313900 | ELECTRICAL EQPMNT | FUEL FIRED EQPMNT | PROCESS HEATERS |
| 313999 | ELECTRICAL EQPMNT | MISCELLANEOUS | NOT CLASSIFIED |
| 314009 | TRANSPORTN EQPMNT | GENERAL PROCESSES | SOLDER JOINT |
| 314010 | TRANSPORTN EQPMNT | BRAKE SHOE DEBOND | INCINERATOR OVEN |
| 314011 | TRANSPORTN EQPMNT | AUTO BODY SALVAGE | BODY SHREDDING |
| 314999 | TRANSPORTN EQPMNT | MISCELLANEOUS | NOT CLASSIFIED |
| 315010 | MISC. INDUSTRIES | PHOTOGRAPHIC EQPT | PHOTOCOPY MACHINE |
| 315020 | MISC. INDUSTRIES | HOSPITALS | STERILIZATION |
| 320999 | LEATHER PRODUCTS | MISCELLANEOUS | NOT CLASSIFIED |
| 330001 | TEXTILE PRODUCTS | GENERAL FABRICS | NOT CLASSIFIED |
| 330002 | RUBBER/PLASTICS | RUBBERIZED FABRIC | IMPREGNATION |
| 330003 | TEXTILE PRODUCTS | CARPET OPERATNS | NOT CLASSIFIED |
| 330004 | TEXTILE PRODUCTS | FABRIC FINISHING | NOT CLASSIFIED |
| 330005 | TEXTILE PRODUCTS | APPAREL | NOT CLASSIFIED |
| 330888 | TEXTILE PRODUCTS | FUGITIVE EMISSION | NOT CLASSIFIED |
| 360001 | PRINTING/PUBLISH | TYPESETTING | LEAD REMELTING |
| 390001 | INDUSTRIAL PROCES | INPROCESS FUEL | ANTHRACITE COAL |
| 390002 | INDUSTRIAL PROCES | INPROCESS FUEL | BITUMINOUS COAL |
| 390003 | INDUSTRIAL PROCES | INPROCESS FUEL | LIGNITE |
| 390004 | INDUSTRIAL PROCES | INPROCESS FUEL | RESIDUAL OIL |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 390005 | INDUSTRIAL PROCES | INPROCESS FUEL | DISTILLATE OIL |
| 390006 | INDUSTRIAL PROCES | INPROCESS FUEL | NATURAL GAS |
| 390007 | INDUSTRIAL PROCES | INPROCESS FUEL | PROCESS GAS |
| 390008 | INDUSTRIAL PROCES | INPROCESS FUEL | COKE |
| 390009 | INDUSTRIAL PROCES | INPROCESS FUEL | WOOD |
| 390010 | INDUSTRIAL PROCES | INPROCESS FUEL | LPG |
| 390012 | INDUSTRIAL PROCES | INPROCESS FUEL | SOLID WASTE FUEL |
| 390013 | INDUSTRIAL PROCES | INPROCESS FUEL | LIQUID WASTE FUEL |
| 399900 | INDUSTRIAL PROCES | MIS IND-FUEL EQPT | PROCESS HEATERS |
| 399999 | INDUSTRIAL PROCES | MISCELLANEOUS | NOT CLASSIFIED |
| 401001 | ORGANIC SOLVENT | DRY CLEANING | PERCHLOROETHYLENE |
| 401002 | ORGANIC SOLVENT | VAPOR DEGREASING | OPEN-TOP |
| 401003 | ORGANIC SOLVENT | COLD CLEANING | METHANOL |
| 401004 | ORGANIC SOLVENT | TEXTILE MFG | FABRIC SCOURING |
| 401888 | ORGANIC SOLVENT | FUGITIVE EMISSION | NOT CLASSIFIED |
| 402001 | ORGANIC SOLVENT | SURFACE COATING | PAINT-GENERAL |
| 402002 | ORGANIC SOLVENT | SURFACE COATING | PAINT-GENERAL |
| 402003 | ORGANIC SOLVENT | SURFACE COATING | VARNISH/SHELLAC |
| 402004 | ORGANIC SOLVENT | SURFACE COATING | LACQUER |
| 402005 | ORGANIC SOLVENT | SURFACE COATING | ENAMEL |
| 402006 | ORGANIC SOLVENT | SURFACE COATING | PRIMER |
| 402007 | ORGANIC SOLVENT | SURFACE COATING | ADHESIVE |
| 402008 | ORGANIC SOLVENT | SURFACE COATING | COATING OVEN |
| 402009 | ORGANIC SOLVENT | SURFACE COATING | THINNING SOLVENT |
| 402010 | ORGANIC SOLVENT | SURFACE COATING | OVEN HEATER |
| 402011 | ORGANIC SOLVENT | SURFACE COATING | FABRIC COATING |
| 402012 | ORGANIC SOLVENT | SURFACE COATING | FABRIC DYEING |
| 402013 | ORGANIC SOLVENT | SURFACE COATING | PAPER COATING |
| 402014 | ORGANIC SOLVENT | SURFACE COATING | LARGE APPLIANCES |
| 402015 | ORGANIC SOLVENT | SURFACE COATING | MAGNET WIRE |
| 402016 | ORGANIC SOLVENT | SURFACE COATING | AUTOS/LIGHT TRUCK |
| 402017 | ORGANIC SOLVENT | SURFACE COATING | CAN COATING |
| 402018 | ORGANIC SOLVENT | SURFACE COATING | COIL COATING |
| 402019 | ORGANIC SOLVENT | SURFACE COATING | WOOD FURNITURE |
| 402020 | ORGANIC SOLVENT | SURFACE COATING | METAL FURNITURE |
| 402021 | ORGANIC SOLVENT | SURFACE COATING | FLATWOOD PRODUCTS |
| 402022 | ORGANIC SOLVENT | SURFACE COATING | PLASTIC PARTS |
| 402023 | ORGANIC SOLVENT | SURFACE COATING | LARGE SHIPS |
| 402024 | ORGANIC SOLVENT | SURFACE COATING | LARGE AIRCRAFT |
| 402025 | ORGANIC SOLVENT | SURFACE COATING | MISC.METAL PARTS |
| 402026 | ORGANIC SOLVENT | SURFACE COATING | STEEL DRUMS |
| 402888 | ORGANIC SOLVENT | SURFACE COATING | FUGITIVE EMISSION |
| 402900 | ORGANIC SOLVENT | SURFACE COATING | FLARES |
| 402999 | ORGANIC SOLVENT | SURFACE COATING | MISCELLANEOUS |
| 403001 | PETROLEUM STORAGE | FIXED ROOF TANKS | BREATHING LOSS |
| 403002 | PETROLEUM STORAGE | FLOAT ROOF TANKS | STAND STG LOSS |
| 403003 | PETROLEUM STORAGE | VAR.VAPOR SP.TNKS | WORKING LOSS |
| 403010 | PETROLEUM STORAGE | FIXED ROOF TANKS | GASOLINE-RVP 13 |
| 403011 | PETROLEUM STORAGE | FLOAT ROOF TANKS | GASOLINE-RVP 13 |
| 403012 | PETROLEUM STORAGE | VAR.VAPOR SP.TNKS | GASOLINE-RVP 13 |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 403888 | PETROLEUM STORAGE | FUGITIVE EMISSION | NOT CLASSIFIED |
| 403999 | PETROLEUM STORAGE | MISCELLANEOUS | NOT CLASSIFIED |
| 404001 | BULK TERMINALS | FIXED ROOF TANKS | GASOLINE-RVP 13 |
| 404002 | BULK PLANTS | FIXED ROOF TANKS | GASOLINE-RVP 13 |
| 404003 | OIL & GAS PRODN | CRUDE OIL STORAGE | FIXED ROOF TANK |
| 404004 | PETROLEUM STORAGE | UNDERGROUND TANKS | GASOLINE-RVP 13 |
| 405001 | PRINTING/PUBLISH | PRINTING PROCESS | DRYER |
| 405002 | PRINTING/PUBLISH | PRINTING PROCESS | LETTER PRESS |
| 405003 | PRINTING/PUBLISH | PRINTING PROCESS | FLEXOGRAPHIC |
| 405004 | PRINTING/PUBLISH | PRINTING PROCESS | LITHOGRAPHIC |
| 405005 | PRINTING/PUBLISH | PRINTING PROCESS | ROTOGRAVURE |
| 405006 | PRINTING/PUBLISH | PRINTING PROCESS | INK MIXING |
| 405007 | PRINTING/PUBLISH | PRINTING PROCESS | SOLVENT STORAGE |
| 405888 | PRINTING/PUBLISH | FUGITIVE EMISSION | NOT CLASSIFIED |
| 406001 | PETROLEUM MARKTNG | TANK CARS/TRUCKS | GASOLINE-SPLASH |
| 406002 | PETROLEUM MARKTNG | MARINE VESSELS | GASOLINE SHIP |
| 406003 | PETROLEUM MARKTNG | SERVICE STATIONS | STAGE I |
| 406004 | PETROLEUM MARKTNG | SERVICE STATIONS | STAGE II |
| 406888 | PETROLEUM MARKTNG | FUGITIVE EMISSION | NOT CLASSIFIED |
| 407004 | ORGANIC CHEM STRG | FIXED ROOF TANKS | ACETIC ANHYDRIDE |
| 407008 | ORGANIC CHEM STRG | FIXED ROOF TANKS | N-BUTYL ALCOHOL |
| 407016 | ORGANIC CHEM STRG | FIXED ROOF TANKS | N-DECANE |
| 407020 | ORGANIC CHEM STRG | FIXED ROOF TANKS | DODECENE |
| 407032 | ORGANIC CHEM STRG | FIXED ROOF TANKS | ANILINE |
| 407036 | ORGANIC CHEM STRG | FIXED ROOF TANKS | BENZENE |
| 407040 | ORGANIC CHEM STRG | FIXED ROOF TANKS | ACETIC ACID |
| 407044 | ORGANIC CHEM STRG | FIXED ROOF TANKS | BUTYL ACETATE |
| 407048 | ORGANIC CHEM STRG | FIXED ROOF TANKS | MTHL-TRT-BTYL ETH |
| 407052 | ORGANIC CHEM STRG | FIXED ROOF TANKS | BUTYL CARBITOL |
| 407056 | ORGANIC CHEM STRG | FIXED ROOF TANKS | 1,4-BUTANEDIOL |
| 407060 | ORGANIC CHEM STRG | FIXED ROOF TANKS | BENZYL CHLORIDE |
| 407064 | ORGANIC CHEM STRG | FIXED ROOF TANKS | MDI |
| 407068 | ORGANIC CHEM STRG | FIXED ROOF TANKS | CYCLOHEXANONE |
| 407076 | ORGANIC CHEM STRG | FIXED ROOF TANKS | ACRYLONITRILE |
| 407080 | ORGANIC CHEM STRG | FIXED ROOF TANKS | NITROBENZENE |
| 407084 | ORGANIC CHEM STRG | FIXED ROOF TANKS | NONYPHENOL |
| 407172 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | ACETALDEHYDE |
| 407176 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | CYCLOHEXANE |
| 407180 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | ISOPRENE |
| 407208 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | ETHYL ETHER |
| 407220 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | CARBON TETRACHLRD |
| 407228 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | ACETONE |
| 407232 | ORGANIC CHEM STRG | FLOAT ROOF TANKS | ETHYL MERCAPTAN |
| 407816 | ORGANIC CHEM STRG | PRESSURE TANKS | ETHANE |
| 407820 | ORGANIC CHEM STRG | PRESSURE TANKS | 1,3-BUTADIENE |
| 407824 | ORGANIC CHEM STRG | PRESSURE TANKS | ACETYLENE |
| 407832 | ORGANIC CHEM STRG | PRESSURE TANKS | METHYLAMINE |
| 407848 | ORGANIC CHEM STRG | PRESSURE TANKS | ETHYLENE OXIDE |
| 407860 | ORGANIC CHEM STRG | PRESSURE TANKS | ETHYL CHLORIDE |
| 407864 | ORGANIC CHEM STRG | PRESSURE TANKS | METHYL ISOCYANATE |

TABLE D-1 (continued)

| SCC | SOURCE DESCRIPTION/PROCESS | | |
|---|---|---|---|
| 407872 | ORGANIC CHEM STRG | PRESSURE TANKS | METHYL MERCAPTAN |
| 407999 | ORGANIC CHEM STRG | MISCELLANEOUS | SPECIFY IN COMMTS |
| 408999 | ORGNC CHEM TRNSPT | TANK CARS/TRUCKS | SPECIFY LIQUID |
| 490001 | ORGANIC SOLVENT | MISCELLANEOUS | SOLVENT EXTRACTN |
| 490002 | ORGANIC SOLVENT | MISCELLANEOUS | SOLVENT RECOVERY |
| 490003 | ORGANIC SOLVENT | MISCELLANEOUS | RAILCAR CLEANING |
| 490004 | ORGANIC SOLVENT | MISCELLANEOUS | TANK TRUCK CLEANG |
| 490900 | ORGANIC SOLVENT | MISCELLANEOUS | INCINERATORS |
| 490999 | ORGANIC SOLVENT | MISCELLANEOUS | NOT CLASSIFIED |
| 501001 | SOLID WASTE DISPL | GOVERNMENT | MUNICIPAL INCIN |
| 501002 | SOLID WASTE DISPL | GOVERNMENT | OPEN BURNING DUMP |
| 501005 | SOLID WASTE DISPL | GOVERNMENT | OTHER INCINERATOR |
| 501006 | SOLID WASTE | GOVERNMENT | FIRE FIGHTING |
| 501007 | SOLID WASTE DISPL | GOVERNMENT | SEWAGE TREATMENT |
| 501900 | SOLID WASTE DISPL | GOVERNMENT | AUX.FUEL/NO EMSNS |
| 502001 | SOLID WASTE DISPL | COMMERCL/INSTITNL | INCINERATION-GENL |
| 502002 | SOLID WASTE DISPL | COMMERCL/INSTITNL | OPEN BURNING |
| 502003 | SOLID WASTE DISPL | COMMERCL/INSTITNL | APARTMENT INCIN |
| 502005 | SOLID WASTE DISPL | COMMERCL/INSTITNL | INCINERATION-SPCL |
| 502006 | SOLID WASTE DISPL | COMMERCL/INSTITNL | LANDFILL DUMP |
| 502900 | SOLID WASTE DISPL | COMMERCL/INSTITNL | AUX.FUEL/NO EMSNS |
| 503001 | SOLID WASTE DISPL | INDUSTRIAL | INCINERATION |
| 503002 | SOLID WASTE DISPL | INDUSTRIAL | OPEN BURNING |
| 503005 | SOLID WASTE DISPL | INDUSTRIAL | INCINERATOR |
| 503006 | SOLID WASTE DISPL | INDUSTRIAL | LANDFILL DUMP |
| 503007 | SOLID WASTE DISPL | INDUSTRIAL | LIQUID WASTE |
| 503008 | SOLID WASTE DISPL | INDUSTRIAL | SURFACE IMPOUNDMT |
| 503900 | SOLID WASTE DISPL | INDUSTRIAL | AUX.FUEL/NO EMSNS |

## TABLE D-2. SOURCE CATEGORY CODES, U.S. AREA SOURCES

| SCC | Category Description |
|---|---|
| 001 | Residential Fuel - Anthracite Coal |
| 002 | Residential Fuel - Bituminous Coal |
| 003 | Residential Fuel - Distillate Oil |
| 004 | Residential Fuel - Residual Oil |
| 005 | Residential Fuel - Natural Gas |
| 006 | Residential Fuel - Wood |
| 007 | Commercial/Institutional Fuel - Anthracite Coal |
| 008 | Commercial/Institutional Fuel - Bituminous Coal |
| 009 | Commercial/Institutional Fuel - Distillate Oil |
| 010 | Commercial/Institutional Fuel - Residual Oil |
| 011 | Commercial/Institutional Fuel - Natural Gas |
| 012 | Commercial/Institutional Fuel - Wood |
| 013 | Industrial Fuel - Anthracite Coal |
| 014 | Industrial Fuel - Bituminous Coal |
| 015 | Industrial Fuel - Coke |
| 016 | Industrial Fuel - Distillate Oil |
| 017 | Industrial Fuel - Residual Oil |
| 018 | Industrial Fuel - Natural Gas |
| 019 | Industrial Fuel - Wood |
| 020 | Industrial Fuel - Process Gas |
| 021 | On-Site Incineration - Residential |
| 022 | On-Site Incineration - Industrial |
| 023 | On-Site Incineration - Commercial/Institutional |
| 024 | Open Burning - Residential |
| 025 | Open Burning - Industrial |
| 026 | Open Burning - Commercial/Institutional |
| 027 | Light Duty Gasoline Vehicles - Limited Access Roads |
| 028 | Light Duty Gasoline Vehicles - Rural Roads |
| 029 | Light Duty Gasoline Vehicles - Suburban Roads |
| 030 | Light Duty Gasoline Vehicles - Urban Roads |
| 031 | Medium Duty Gasoline Vehicles - Limited Access Roads |
| 032 | Medium Duty Gasoline Vehicles - Rural Roads |
| 033 | Medium Duty Gasoline Vehicles - Suburban Roads |
| 034 | Medium Duty Gasoline Vehicles - Urban Roads |
| 035 | Heavy Duty Gasoline Vehicles - Limited Access Roads |
| 036 | Heavy Duty Gasoline Vehicles - Rural Roads |
| 037 | Heavy Duty Gasoline Vehicles - Suburban Roads |
| 038 | Heavy Duty Gasoline Vehicles - Urban Roads |
| 039 | Off Highway Gasoline Vehicles |
| 040 | Heavy Duty Diesel Vehicles - Limited Access Roads |
| 041 | Heavy Duty Diesel Vehicles - Rural Roads |
| 042 | Heavy Duty Diesel Vehicles - Suburban Roads |
| 043 | Heavy Duty Diesel Vehicles - Urban Roads |
| 044 | Off Highway Diesel Vehicles |
| 045 | Railroad Locomotives |
| 046 | Aircraft LTOs - Military |
| 047 | Aircraft LTOs - Civil |
| 048 | Aircraft LTOs - Commercial |
| 049 | Vessels - Coal |

TABLE D-2 (continued)

| SCC | Category Description |
|---|---|
| 050 | Vessels - Diesel Oil |
| 051 | Vessels - Residual Oil |
| 052 | Vessels - Gasoline |
| 054 | Gasoline Marketed |
| 055 | Unpaved Road Travel |
| 056 | Unpaved Airstrip LTOs |
| 057 | Construction |
| 058 | Miscellaneous Wind Erosion |
| 059 | Land Tilling |
| 060 | Forest Wild Fires |
| 061 | Managed Burning - Prescribed |
| 062 | Agricultural Field Burning |
| 063 | Frost Control - Orchard Heaters |
| 064 | Structural Fires |
| 071 | Beef Cattle Manure Field Application |
| 072 | Dairy Cattle Manure Field Application |
| 073 | Hog and Pig Manure Field Application |
| 074 | Broiler Chicken Manure Field Application |
| 075 | Other Chicken Manure Field Application |
| 076 | Anhydrous Ammonia Fertilizer Application |
| 077 | Beef Cattle Feed Lots |
| 078 | Degreasing |
| 079 | Drycleaning |
| 080 | Graphic Arts (Printing) |
| 081 | Rubber and Plastics Manufacturing |
| 082 | Architectural Coating |
| 083 | Auto Body Repair |
| 084 | Motor Vehicle Manufacturing |
| 085 | Paper Coating |
| 086 | Fabricated Metals |
| 087 | Machinery Manufacturing |
| 088 | Furniture Manufacturing |
| 089 | Flat Wood Products |
| 090 | Other Transportation Equipment Manufacturing |
| 091 | Electrical Equipment Manufacturing |
| 092 | Ship Building and Repairing |
| 093 | Miscellaneous Industrial Manufacturing |
| 094 | Miscellaneous Industrial Solvent Use |
| 095 | Miscellaneous Nonindustrial Solvent Use |
| 096 | Minor Utility Sources - Coal |
| 097 | Minor Utility Sources - Oil |
| 098 | Minor Utility Sources - Gas |
| 099 | Minor Point Sources |

TABLE D-3. SOURCE CATEGORY CODES, CANADIAN AREA SOURCES

| SCC | Category Description |
|---|---|
| 10101 | Gasoline Powered Motor Ve - Light Duty Trucks |
| 10102 | Gasoline Powered Motor Ve - Heavy Duty Trucks |
| 10103 | Gasoline Powered Motor Ve - Medium Duty Vehicles |
| 10104 | Gasoline Powered Motor Ve - Automobiles |
| 10105 | Gasoline Powered Motor Ve - Motorcycles |
| 10106 | Gasoline Powered Motor Ve - Snowmobiles |
| 10201 | Off-Highway Mobile Source - Helicopters |
| 10202 | Off-Highway Mobile Source - Helicopter Flight Em |
| 10203 | Off-Highway Mobile Source - Jet Aircraft |
| 10204 | Off-Highway Mobile Source - Jet Aircraft Flight |
| 10206 | Off-Highway Mobile Source - Local Aircraft Fligh |
| 10207 | Off-Highway Mobile Source - Piston Engine Aircra |
| 10208 | Off-Highway Mobile Source - Piston Engine Inflig |
| 10210 | Off-Highway Mobile Source - Piston Transport Inf |
| 10211 | Off-Highway Mobile Source - Small Piston Aircraf |
| 10213 | Off-Highway Mobile Source - Turboprop Aircraft |
| 10214 | Off-Highway Mobile Source - Diesel Oil - Railroa |
| 10215 | Off-Highway Mobile Source - Gasoline Outboards |
| 10217 | Off-Highway Mobile Source - Motorships Dockside |
| 10218 | Off-Highway Mobile Source - Motorships Underway |
| 10220 | Off-Highway Mobile Source - Steamship Dockside |
| 10221 | Off-Highway Mobile Source - Steamships Underway |
| 10301 | Non-Highway Use of Gasoline |
| 10501 | Forest Fires |
| 10601 | Slash Burning |
| 10701 | Structural Fires |
| 10801 | Fertilizer Application |
| 11201 | Dry Cleaning |
| 11301 | Sand and Gravel Processing |
| 11401 | Coal Industry - Coal Handling |
| 11402 | Coal Industry - Coal Mining |
| 11403 | Coal Industry - Overburden Removal F |
| 11404 | Coal Industry - Coal Transportation |
| 11501 | Wood Industry - Sawmill Production |
| 11502 | Wood Industry - Plywood and Veneer Pro |
| 11503 | Wood Industry - Hardwood Production |
| 11504 | Wood Industry - Pulpboard Production |
| 11702 | Fuel Comb - Stationary So - Elec Pwr - Dist. Oil |
| 11703 | Fuel Comb - Stationary So - Elec Pwr - Diesel Tu |
| 11704 | Fuel Comb - Stationary So - Elec Pwr - Heavy Oil |
| 11705 | Fuel Comb - Stationary So - Elec Pwr - Misc. Dsl |
| 11706 | Fuel Comb - Stationary So - Elec Pwr - Natural G |
| 11711 | Fuel Comb - Stationary So - Residential Coal |
| 11712 | Fuel Comb - Stationary So - Residential Dist. Oil |
| 11713 | Fuel Comb - Stationary So - Residential Kerosene |
| 11714 | Fuel Comb - Stationary So - Residential Liq. Pet |
| 11715 | Fuel Comb - Stationary So - Residential Residual |
| 11721 | Fuel Comb - Stationary So - Commercial Coal |

TABLE D-3 (continued)

| SCC | Category Description |
|---|---|
| 11722 | Fuel Comb - Stationary So - Commercial Dist. Oil |
| 11723 | Fuel Comb - Stationary So - Commercial Kerosene |
| 11724 | Fuel Comb - Stationary So - Commercial Liq. Pet. |
| 11725 | Fuel Comb - Stationary So - Commercial Natural G |
| 11726 | Fuel Comb - Stationary So - Commercial Residual |
| 11731 | Fuel Comb - Stationary So - Industrial Coal |
| 11732 | Fuel Comb - Stationary So - Industrial Dist. Oil |
| 11733 | Fuel Comb - Stationary So - Industrial Kerosene |
| 11734 | Fuel Comb - Stationary So - Industrial Liq. Pet. |
| 11735 | Fuel Comb - Stationary So - Industrial Natural G |
| 11736 | Fuel Comb - Stationary So - Industrial Residual |
| 11740 | Fuel Comb - Stationary So - Fuelwood Combustor |
| 11801 | Bakeries |
| 12001 | Asphalt Production - Asphalt Drying |
| 12002 | Asphalt Production - Asphalt Fugitive |
| 12101 | Stone Processing - Crush.Stn - Pri.Crushi |
| 12102 | Stone Processing - Crush.Stn - Scrn,Cnvy |
| 12103 | Stone Processing - Crush.Stn - Sec.Crush& |
| 12104 | Stone Processing - Crush.Stn - Sec.Crush. |
| 12111 | Stone Processing - Pulv.Stn - Pri.Crushin |
| 12112 | Stone Processing - Pulv.Stn - Recrush&Scr |
| 12113 | Stone Processing - Pulv.Stn - Scrn,Cnvy&H |
| 12114 | Stone Processing - Pulv.Stn - Sec.Crush&S |
| 12115 | Stone Processing - Pulv.Stn - Sec.Crush.F |
| 12116 | Stone Processing - Pulv.Stn - Fines Mills |
| 12117 | Stone Processing - Pulv.Stn - Storage Pil |
| 12121 | Stone Processing - Building Stone - Cutt |
| 12501 | Clay Products Manufacture - Clay Prod. - Dryer - Gri |
| 12502 | Clay Products Manufacture - Clay Prod. - Storage |
| 12601 | Grain Handling and Milling - Term.Elev - Cleaning |
| 12602 | Grain Handling and Milling - Term.Elev - Drying |
| 12603 | Grain Handling and Milling - Term.Elev - Headhouse |
| 12604 | Grain Handling and Milling - Term.Elev - Ship & Rec |
| 12605 | Grain Handling and Milling - Term.Elev - Transfer C |
| 12606 | Grain Handling and Milling - Term.Elev - Tripper(Ga |
| 12613 | Grain Handling and Milling - Prim.Elev - Headhouse |
| 12614 | Grain Handling and Milling - Prim.Elev - Ship & Rec |
| 12615 | Grain Handling and Milling - Prim.Elev - Transfer C |
| 12623 | Grain Handling and Milling - Xfer.Elev - Headhouse |
| 12624 | Grain Handling and Milling - Xfer.Elev - Ship & Rec |
| 12625 | Grain Handling and Milling - Xfer.Elev - Transfer C |
| 12626 | Grain Handling and Milling - Xfer.Elev - Tripper(Ga |
| 12641 | Grain Handling and Milling - Proc.Elev - Cleaning H |
| 12642 | Grain Handling and Milling - Proc.Elev - Millhouse |
| 12643 | Grain Handling and Milling - Proc.Elev - Preclean & |
| 12644 | Grain Handling and Milling - Proc.Elev - Receiving |
| 12701 | Natural Gas Processing - Compressor Engin. Non |
| 12702 | Natural Gas Processing - Compressor Turb. Non |

TABLE D-3 (continued)

| SCC | Category Description |
|---|---|
| 12703 | Natural Gas Processing - Compressors In-Plant |
| 12704 | Natural Gas Processing - Heaters Boilers In-P |
| 12705 | Natural Gas Processing |
| 12801 | Solid Waste Incineration - Wood Waste Disposal |
| 12802 | Solid Waste Incineration - Controlled Air |
| 12803 | Solid Waste Incineration - Multiple Chamber |
| 12901 | Diesel and Gasoline Marketi - Filling Vehicle Tank |
| 12902 | Diesel and Gasoline Marketi - Refinery Storage Tra |
| 12903 | Diesel and Gasoline Marketi - Spillage at Station |
| 12904 | Diesel and Gasoline Marketi - Station Storage Tran |
| 12905 | Diesel and Gasoline Marketi - Transfer to Cars |
| 12906 | Diesel and Gasoline Marketi - Vapor Loss at Statio |
| 12907 | Diesel and Gasoline Marketi - Diesel Evaporation |
| 13001 | Application of Surface Co - Industrial Use |
| 13002 | Application of Surface Co - Trade, Sales Use |
| 13101 | Landfill Sites |
| 13201 | Ferrous Foundries - Cupola Furnace (Hot |
| 13202 | Ferrous Foundries - Cupola(+1 Reverb.) Fu |
| 13203 | Ferrous Foundries - Electric Arc Furnace |
| 13204 | Ferrous Foundries - Induction Furnace (H |
| 13205 | Ferrous Foundries - Rotary Oil Furnace (H |
| 13701 | Dust from Unpaved Roads - Trucks Earth Roads |
| 13702 | Dust from Unpaved Roads - Trucks Treated Grave |
| 13703 | Dust from Unpaved Roads - Trucks Untreated Gra |
| 13704 | Dust from Unpaved Roads - Vehicles Earth Roads |
| 13705 | Dust from Unpaved Roads - Vehicles Treated Gra |
| 13706 | Dust from Unpaved Roads - Vehicles Untreated G |
| 13901 | Concrete Batching |
| 13902 | Concrete Batching - Fugitive (Material H |
| 14001 | Cigarette Smoking |
| 14101 | Crude Oil Production - Evaporation from Shi |
| 14102 | Crude Oil Production - Evaporation |
| 14201 | Mining and Rock Quarrying - Concentrate Dryers |
| 14202 | Mining and Rock Quarrying - Concentrate Transpor |
| 14203 | Mining and Rock Quarrying - Open Pit Mining |
| 14204 | Mining and Rock Quarrying - Overburden Removal F |
| 14205 | Mining and Rock Quarrying - Under Ground Mining |
| 14401 | Tire Wear |
| 14501 | Pesticide Application |
| 14601 | Diesel Powered Engines - Agriculture Diesel V |
| 14602 | Diesel Powered Engines - Construction Vehicle |
| 14603 | Diesel Powered Engines - Heavy Duty Vehicles |
| 14604 | Diesel Powered Engines - Other Industrial Eng |
| 14701 | Plastics Fabrication |
| 14801 | Agriculture - Wind Erosion of Crop |
| 14802 | Agriculture - Fugitive Tilling Emi |
| 14901 | Tailing Piles Erosion |
| 15001 | Construction Sites - Bridges, Tunnels, Roads |

TABLE D-3 (continued)

| SCC | Category Description |
|---|---|
| 15002 | Construction Sites - Heavy Construction |
| 15003 | Construction Sites - Non-Residential Cons |
| 15004 | Construction Sites - Residential Construc |
| 15005 | Construction Sites - Water,Sewer,Utility |
| 15101 | General Solvent Use |
| 15201 | Dust from Paved Roads - Trucks |
| 15202 | Dust from Paved Roads - Vehicles |

# APPENDIX E

## SPECIATION FILES AND DISCUSSION OF CONVERSION OF EMISSION RATES FROM MOLES/YEAR TO TONS/YEAR

### SPECIATION FILES

Tables E-1 through E-5 contain the SCC/Profile, Species/Profile, and Species/Class assignments used to speciate hydrocarbons and NOx in the 1980 NAPAP inventory. These files are provided as input to the program PSPLIT, which calculates speciation factors at the class level for each SCC in the SCC/Profile file.

In the Species/Profile file (Table E-4), the first card for each profile contains weight percentages for NO, NO2, and formaldehyde. Subsequent cards, 1 per species, contain the species SAROAD code, percent contribution by weight, molecular weight and species name. In the Species Class file (Table E-5), data are presented for each hydrocarbon species, 1 card per species; each card contains the species class, molecular weight and compound name.

### CONVERSION OF EMISSION RATES FROM MOLES/YEAR TO TONS/YEAR

In the 1980 inventory output tables contained in this report, VOC and THC emission rates for the 5.0 inventory are listed in units of tons/year. Speciation factors from PSPLIT are expressed as moles of hydrocarbon class per unit mass of total hydrocarbons. Hence, the output of the FREDS Speciation Module for hydrocarbon classes is in moles/year. The conversion from a mass basis to a mole basis is made so that data on the tape files will be in the units preferred by modelers, i.e., moles. The data are aggregated into 23 hydrocarbon classes (17 compounds and 6 groups of compounds) to save computer storage space and decrease computational time relative to that which would be required if no aggregation were performed.

All of the hydrocarbon data presented in this report for the 5.0 inventory are presented as VOC and THC in units of tons/year. All of the speciated hydrocarbon data presented in this report for the 5.2 inventory are presented in terms of the 23 hydrocarbon classes in units of moles/year. It is possible to convert the 5.2 inventory data for 17 of the 23 hydrocarbon classes from moles/year to tons/year. Data for the 17 classes which are 17 identified compounds can be converted to tons/year using the compound molecular weights listed in Table E-5. In most cases however, data for the six hydrocarbon classes which are groups of compounds (alkanes, alkenes, aromatics, aldehydes, ketones and organic acids) cannot be converted directly to tons/year because the individual species makeup of the class may vary from one profile to the next (see Table E-4). Therefore, the average molecular weights for these six classes vary from SCC code to SCC code, from state to state, from province to province, etc. This point is illustrated below for a particular 6-digit SCC code.

Hydrocarbon class emission data were reviewed to find a 6-digit SCC code with high emissions of alkanes, alkenes, aromatics, aldehydes, ketones and organic acids. SCC code 301999 showed high emissions for a broad range of organic compounds including the following classes: alkanes, alkenes, aromatics, aldehydes and organic acids. Additionally, SCC code 301999 had a single speciation profile, K0079. Using speciation profile data from Table E-4, it was possible to calculate the emission rate for each hydrocarbon species in tons/year, convert to 1000-mole/year, aggregate to the 23 hydrocarbon classes, and assess the feasibility of recalculating the original 5.0 values for VOC and THC.

SCC code 301999 data are shown in Table E-6. From the 5.0 inventory, it is known that the annual THC emissions are 211,348 tons. Speciation information (weight percent, molecular weight, compound and class) is available from Table E-5 and is listed in columns 1 through 4 of Table E-6. Column 5 is a conversion from weight percent to weight fraction. Column 6 lists the calculated emission rate for each compound in tons/year, equal to (THC) * (weight fraction). Column 7 lists the calculated emission rate in 1000-mole/year. The emission rate in 1000-mole/year is equal to (the emission rate in tons/year) * (conversion factor, i.e., 907.2 kg/ton) / (molecular weight in kg/1000-mole). The last four lines of data in Table E-6 show the weighted average molecular weights for the three multi-component classes (alkanes, alkenes and aromatics). Table E-6 provides details of the calculations which lead to species emission rates before aggregation into the standard 23 hydrocarbon classes used for the 5.2 inventory.

Aggregated data for SCC code 301999 are presented in Table E-7. In total, 12 of the standard 23 classes have hydrocarbon emissions. Class names are listed in column 1 and emission rates in 1000-mole/year are provided in column 2. These first two columns contain all of the data that is provided in the 5.2 inventory tables in Appendix A and in the body of the 1980 inventory report. The remaining columns illustrate the types of errors which can arise when one attempts to convert aggregated hydrocarbon data back from units of 1000-mole/year to units of tons/year. Molecular weights are listed in column 3. All of the molecular weight values were obtained from Table E-5. This would normally be the only source of information for molecular weights. For a great many of the six-digit SCC codes and for all of the other types of listings (e.g., by state, province, region or country) the multiple species profiles prevent one from back-calculating the weight percentage contributions to each of the six multi-component classes. Thus, for aldehydes, alkanes, alkenes, aromatics and organic acids, we have selected Table E-5 average molecular weight values of 72.61, 121.79, 80.41, 126.14 and 122.09. From Table E-6, it is clear that the actual values for SCC code 301999 were not equal to the average values from Table E-5. Column 4 of Table E-7 provides the known emission rates (in tons/year) from Table E-6. Column 5 of Table E-7 lists the calculated emission rates in tons per year. The values were calculated as (1000-mole/year, column 2) * (molecular weight, column 3) / (conversion factor, i.e., 907.2 kg/1000-mole). The final column in Table E-7 shows the errors which occur when average molecular weights for multi-component classes are used to convert from 5.2 inventory emission rates in 1000-moles/year to emission rates in tons/year.

Table E-7 shows that for single-component hydrocarbon classes, no calculation error is introduced when the 5.2 inventory emission rates are converted from units of 1000-moles/year to units of tons/year. Note however that for the multicomponent hydrocarbon classes, errors can range from insignificant to quite large:

| Class | Error |
|---|---|
| aldehydes | 1 % |
| alkanes | 158 % |
| alkenes | 40 % |
| aromatics | 26 % |
| organic acids | -47 % |
| calculated THC | 50 % |

The sources of these calculation errors can be assessed for each class. For example, the (weighted) average molecular weight of alkanes in SCC code 301999 was 47.26, i.e., the number of tons/year (56,430) divided by the number of moles/year (1,083,337,000) yields a molecular weight of 0.000052089 tons/mole which is equal to 47.26 kg/1000-mole or 47.26 g/mole. On the other hand, the grand average of all the alkane molecular weights in Table 3-5 is 121.79. The ratio of these two molecular weight values (121.79/47.26) is 2.58 which leads to the 158 % calculation error. For certain 6-digit SCC aggregations (such as 301999) which use only a single speciation profile, it is possible to calculate the correct weighted molecular weight values and perform a proper conversion between sets of units for emission rates. However, for 6-digit SCC codes using more than one profile this is not possible; similarly for other groupings (by state, by province, by region and by country) it is not possible to back-calculate the required data.

It is possible to calculate the maximum potential errors which can be introduced by converting from 1000-moles/year to tons/year. The maximum possible errors can be determined by comparing the smallest and largest molecular weight values to the average value for each multi-component class:

| class | maximum error | SCC 301999 error |
|---|---|---|
| aldehydes | - 1 % to + 1 % | + 1 % |
| alkanes | - 79 % to + 368 % | + 158 % |
| alkenes | - 51 % to + 106 % | + 40 % |
| aromatics | - 45 % to + 81 % | + 26 % |
| ketones | - 26 % to + 35 % | |
| organic acids | - 47 % to + 88 % | - 47 % |

For a particular SCC code these errors are possible. For aldehydes and organic acids, the SCC 301999 observed errors were equal to the maximum possible errors. For alkanes, alkenes and aromatics, the SCC 301999 observed errors were approximately equal to one-third of the maximum possible error. For THC calculated from the aggregated 5.2 inventory parameters in Table E-7, the net error was + 50 % relative to the 5.0 inventory value.

In summary, it is advised that readers not attempt to convert 5.2 inventory multi-component hydrocarbon class data from units of 1000-moles/year to tons/year using molecular weight averages, as large errors can result. The original intent of the 1980 inventory was to provide basic data to modelers and their preferred units are moles of hydrocarbons, not tons. For economic reasons, it was determined that many of the more than 150 hydrocarbon species would have to be aggregated into multi-component classes. This aggregation process has resulted in a loss of information which prevents direct interconversion of emission rates between various sets of units.

**TABLE E-1. SCC/PROFILE ASSIGNMENTS FOR U.S. AREA SOURCES, 1980 NAPAP INVENTORY VERSION 5.2**

| | |
|---|---|
| 001 | R0001 |
| 002 | R0001 |
| 003 | K0002 |
| 004 | K0001 |
| 005 | K0003 |
| 006 | R0001 |
| 007 | R0001 |
| 008 | R0001 |
| 009 | K0002 |
| 010 | K0001 |
| 011 | K0003 |
| 012 | R0001 |
| 013 | R0001 |
| 014 | R0001 |
| 015 | R0001 |
| 016 | K0002 |
| 017 | K0001 |
| 018 | K0003 |
| 019 | R0001 |
| 020 | K0004 |
| 021 | C0051 |
| 022 | C0051 |
| 023 | C0051 |
| 024 | K0121 |
| 025 | K0121 |
| 026 | K0121 |
| 027 | X0002 |
| 028 | X0002 |
| 029 | X0002 |
| 030 | X0002 |
| 031 | X0002 |
| 032 | X0002 |
| 033 | X0002 |
| 034 | X0002 |
| 035 | X0002 |
| 036 | X0002 |
| 037 | X0002 |
| 038 | X0002 |
| 039 | C0038 |
| 040 | C0034 |
| 041 | C0034 |
| 042 | C0034 |
| 043 | C0034 |
| 044 | K0330 |
| 045 | C0004 |
| 046 | C0020 |
| 047 | C0020 |
| 048 | C0020 |
| 049 | R0001 |
| 050 | K0002 |
| 051 | K0001 |
| 052 | C0121 |
| 053 | X0007 |
| 054 | X0006 |
| 055 | C0038 |
| 056 | C0020 |
| 057 | C0049 |
| 058 | C0049 |
| 059 | C0049 |
| 060 | K0121 |
| 061 | K0121 |
| 062 | K0121 |
| 063 | K0121 |
| 064 | K0121 |
| 071 | K0203 |
| 072 | K0203 |
| 073 | K0203 |
| 074 | K0203 |
| 075 | K0203 |
| 076 | K0203 |
| 077 | K0203 |
| 078 | X0013 |
| 079 | C0043 |
| 080 | K0181 |
| 081 | K0272 |
| 082 | K0196 |
| 083 | K0280 |
| 084 | K0196 |
| 085 | K0149 |
| 086 | K0196 |
| 087 | K0196 |
| 088 | K0148 |
| 089 | K0157 |
| 090 | K0196 |
| 091 | K0196 |
| 092 | K0196 |
| 093 | X0007 |
| 094 | X0007 |
| 095 | K0197 |
| 096 | R0001 |
| 097 | K0001 |
| 098 | K0003 |
| 099 | C0015 |

TABLE E-2. SCC/PROFILE ASSIGNMENTS FOR CANADIAN AREA SOURCES, 1980 NAPAP INVENTORY VERSION 5.2

| | |
|---|---|
| 10101 | X0002 |
| 10102 | X0002 |
| 10103 | X0002 |
| 10104 | X0002 |
| 10105 | X0002 |
| 10106 | X0002 |
| 10201 | C0020 |
| 10202 | C0020 |
| 10203 | C0020 |
| 10204 | C0020 |
| 10206 | C0020 |
| 10207 | C0020 |
| 10208 | C0020 |
| 10210 | C0020 |
| 10211 | C0020 |
| 10213 | C0020 |
| 10214 | C0004 |
| 10215 | C0121 |
| 10217 | K0002 |
| 10218 | K0002 |
| 10220 | K0001 |
| 10221 | K0001 |
| 10301 | C0038 |
| 10501 | K0121 |
| 10601 | K0121 |
| 10701 | K0121 |
| 10801 | K0203 |
| 11201 | C0043 |
| 11301 | C0031 |
| 11401 | R0001 |
| 11402 | R0001 |
| 11403 | R0001 |
| 11404 | X0002 |
| 11501 | C0025 |
| 11502 | C0025 |
| 11503 | C0025 |
| 11504 | C0025 |
| 11702 | K0002 |
| 11703 | K0009 |
| 11704 | K0001 |
| 11705 | K0009 |
| 11706 | K0003 |
| 11711 | R0001 |
| 11711 | R0001 |
| 11712 | K0002 |
| 11713 | K0002 |
| 11714 | K0003 |
| 11715 | K0003 |
| 11716 | K0001 |
| 11721 | R0001 |
| 11722 | K0002 |
| 11723 | K0002 |
| 11724 | K0003 |
| 11725 | K0003 |
| 11726 | K0001 |
| 11731 | R0001 |
| 11732 | K0002 |
| 11733 | K0002 |
| 11734 | K0003 |
| 11735 | K0003 |
| 11736 | K0001 |
| 11740 | R0001 |
| 11801 | K0003 |
| 12001 | K0025 |
| 12002 | K0024 |
| 12101 | C0031 |
| 12102 | C0031 |
| 12103 | C0031 |
| 12104 | C0031 |
| 12111 | C0031 |
| 12112 | C0031 |
| 12113 | C0031 |
| 12114 | C0031 |
| 12115 | C0031 |
| 12116 | C0031 |
| 12117 | C0031 |
| 12121 | C0031 |
| 12501 | C0031 |
| 12502 | C0031 |
| 12601 | C0032 |
| 12602 | C0032 |
| 12603 | C0032 |
| 12604 | C0032 |
| 12605 | C0032 |
| 12606 | C0032 |
| 12613 | C0032 |
| 12614 | C0032 |
| 12615 | C0032 |
| 12623 | C0032 |
| 12624 | C0032 |
| 12625 | C0032 |
| 12626 | C0032 |
| 12641 | C0032 |
| 12642 | C0032 |
| 12643 | C0032 |
| 12644 | C0032 |
| 12701 | K0003 |
| 12702 | K0003 |
| 12703 | K0003 |
| 12704 | K0003 |
| 12705 | K0003 |
| 12801 | C0051 |
| 12802 | C0051 |
| 12803 | C0051 |
| 12901 | X0006 |
| 12902 | X0006 |
| 12903 | X0006 |
| 12904 | X0006 |
| 12905 | X0006 |
| 12906 | X0006 |
| 12907 | X0006 |
| 13001 | K0096 |
| 13002 | K0196 |
| 13101 | C0117 |
| 13201 | C0085 |
| 13202 | C0085 |
| 13203 | C0085 |
| 13204 | C0085 |
| 13204 | C0085 |
| 13205 | C0085 |
| 13701 | C0038 |
| 13702 | C0038 |
| 13702 | C0038 |
| 13703 | C0038 |
| 13704 | C0038 |
| 13705 | C0038 |
| 13705 | C0038 |
| 13706 | C0038 |
| 13901 | K0025 |
| 13902 | K0025 |
| 14001 | C0025 |
| 14101 | K0296 |
| 14102 | K0296 |
| 14201 | C0031 |
| 14201 | C0031 |
| 14202 | C0031 |
| 14202 | C0031 |
| 14203 | C0031 |
| 14204 | C0031 |
| 14205 | C0031 |
| 14401 | C0031 |
| 14501 | K0076 |
| 14601 | C0034 |
| 14602 | C0034 |
| 14603 | C0034 |
| 14604 | C0034 |
| 14701 | C0015 |
| 14801 | C0049 |
| 14802 | C0049 |
| 14901 | C0049 |
| 15001 | C0049 |
| 15002 | C0049 |
| 15003 | C0049 |
| 15004 | C0049 |
| 15005 | C0049 |
| 15101 | X0007 |
| 15201 | X0002 |
| 15202 | X0002 |

## TABLE E-3. SCC/PROFILE ASSIGNMENTS FOR U.S. AND CANADIAN POINT SOURCES, 1980 NAPAP INVENTORY VERSION 5.2

| | |
|---|---|
| 10100101 | R0001 |
| 10100102 | R0001 |
| 10100201 | R0001 |
| 10100202 | R0001 |
| 10100203 | R0001 |
| 10100204 | R0001 |
| 10100205 | R0001 |
| 10100209 | R0001 |
| 10100212 | R0001 |
| 10100221 | R0001 |
| 10100222 | R0001 |
| 10100223 | R0001 |
| 10100224 | R0001 |
| 10100226 | R0001 |
| 10100299 | R0001 |
| 10100301 | R0001 |
| 10100302 | R0001 |
| 10100303 | R0001 |
| 10100306 | R0001 |
| 10100401 | K0001 |
| 10100402 | K0001 |
| 10100404 | K0001 |
| 10100501 | K0002 |
| 10100504 | K0002 |
| 10100505 | K0002 |
| 10100601 | K0003 |
| 10100602 | K0003 |
| 10100604 | K0003 |
| 10100702 | K0004 |
| 10100801 | R0001 |
| 10100901 | K0001 |
| 10100902 | K0001 |
| 10100903 | K0003 |
| 10200101 | K0003 |
| 10200104 | R0001 |
| 10200107 | R0001 |
| 10200201 | R0001 |
| 10200202 | R0001 |
| 10200203 | R0001 |
| 10200204 | R0001 |
| 10200205 | R0001 |
| 10200206 | R0001 |
| 10200208 | R0001 |
| 10200209 | R0001 |
| 10200210 | R0001 |
| 10200211 | R0001 |
| 10200212 | R0001 |
| 10200213 | R0001 |
| 10200214 | R0001 |
| 10200225 | R0001 |
| 10200299 | R0001 |
| 10200301 | R0001 |
| 10200302 | R0001 |
| 10200304 | R0001 |
| 10200306 | R0001 |
| 10200401 | K0001 |
| 10200402 | K0001 |
| 10200403 | K0001 |
| 10200404 | K0001 |
| 10200501 | K0002 |
| 10200502 | K0002 |
| 10200503 | K0002 |
| 10200504 | K0002 |
| 10200601 | K0003 |
| 10200602 | K0003 |
| 10200603 | K0003 |
| 10200701 | K0004 |
| 10200702 | K0004 |
| 10200704 | K0004 |
| 10200705 | K0004 |
| 10200707 | K0005 |
| 10200708 | K0005 |
| 10200799 | K0004 |
| 10200802 | R0001 |
| 10200804 | R0001 |
| 10200901 | R0001 |
| 10200902 | R0001 |
| 10200903 | R0001 |
| 10201002 | K0003 |
| 10201101 | C0035 |
| 10201201 | R0001 |
| 10201301 | K0002 |
| 10201302 | K0002 |
| 10201404 | K0029 |
| 10299997 | K0003 |
| 10299998 | K0003 |
| 10300101 | R0001 |
| 10300102 | R0001 |
| 10300205 | R0001 |
| 10300206 | R0001 |
| 10300207 | R0001 |
| 10300208 | R0001 |
| 10300209 | R0001 |
| 10300210 | R0001 |
| 10300211 | R0001 |
| 10300212 | R0001 |
| 10300213 | R0001 |
| 10300214 | R0001 |
| 10300224 | R0001 |
| 10300225 | R0001 |
| 10300299 | R0001 |
| 10300305 | R0001 |
| 10300307 | R0001 |
| 10300309 | R0001 |
| 10300401 | K0001 |
| 10300402 | K0001 |
| 10300403 | K0001 |
| 10300404 | K0001 |
| 10300501 | K0002 |
| 10300502 | K0002 |
| 10300503 | K0002 |
| 10300504 | K0002 |
| 10300601 | K0003 |
| 10300602 | K0003 |
| 10300603 | K0003 |
| 10300901 | R0001 |
| 10300902 | R0001 |
| 10300903 | R0001 |
| 10301201 | K0003 |
| 10301302 | K0002 |
| 10301303 | K0002 |
| 10390006 | C0035 |
| 10399997 | C0049 |
| 10500102 | K0002 |
| 10500105 | K0002 |
| 10500106 | K0003 |
| 10500110 | K0003 |
| 10500202 | K0002 |
| 10500205 | K0002 |
| 10500501 | K0002 |
| 10500601 | K0003 |
| 19999999 | C0049 |
| 20100101 | K0009 |
| 20100102 | K0009 |
| 20100201 | K0007 |
| 20100202 | K0010 |
| 20100301 | K0008 |
| 20100302 | K0008 |
| 20100501 | K0008 |
| 20100901 | K0008 |
| 20100902 | K0008 |
| 20200101 | K0009 |
| 20200102 | K0009 |
| 20200201 | K0007 |
| 20200202 | K0010 |
| 20200301 | K0009 |
| 20200401 | K0009 |
| 20300101 | K0009 |
| 20300201 | K0010 |
| 20400101 | K0010 |
| 20400401 | K0009 |
| 20400402 | K0008 |
| 20400499 | C0081 |
| 29999999 | K0008 |
| 30100101 | K0071 |
| 30100103 | K0079 |
| 30100104 | C0035 |
| 30100106 | C0015 |
| 30100305 | C0035 |
| 30100306 | C0035 |
| 30100307 | C0035 |
| 30100308 | C0035 |
| 30100309 | C0035 |
| 30100399 | K0079 |
| 30100502 | C0035 |
| 30100503 | K0079 |
| 30100504 | K0079 |
| 30100505 | C0015 |
| 30100507 | C0035 |
| 30100509 | C0035 |
| 30100599 | K0079 |
| 30100601 | K0079 |
| 30100699 | K0079 |
| 30100701 | C0015 |
| 30100799 | K0079 |
| 30100801 | C0035 |
| 30100802 | C0035 |
| 30100899 | C0035 |
| 30100901 | K0079 |
| 30100902 | K0079 |
| 30100910 | K0079 |
| 30100999 | K0079 |
| 30101011 | C0035 |
| 30101013 | C0035 |
| 30101015 | C0035 |

## TABLE E-3 (continued)

| | |
|---|---|
| 30101099 | C0035 |
| 30101101 | K0025 |
| 30101199 | C0015 |
| 30101202 | C0035 |
| 30101203 | C0035 |
| 30101301 | K0079 |
| 30101302 | K0079 |
| 30101303 | C0035 |
| 30101304 | C0035 |
| 30101399 | K0079 |
| 30101401 | K0066 |
| 30101402 | K0066 |
| 30101499 | K0066 |
| 30101501 | K0066 |
| 30101502 | K0066 |
| 30101503 | K0066 |
| 30101505 | K0066 |
| 30101599 | K0066 |
| 30101601 | C0035 |
| 30101602 | C0035 |
| 30101612 | C0015 |
| 30101699 | C0035 |
| 30101702 | K0079 |
| 30101704 | C0035 |
| 30101722 | C0049 |
| 30101799 | C0049 |
| 30101800 | K0067 |
| 30101801 | K0067 |
| 30101802 | K0068 |
| 30101803 | C0015 |
| 30101805 | C0015 |
| 30101807 | C0015 |
| 30101812 | C0015 |
| 30101817 | C0035 |
| 30101822 | C0035 |
| 30101827 | C0015 |
| 30101838 | C0015 |
| 30101839 | C0015 |
| 30101840 | C0015 |
| 30101847 | C0035 |
| 30101891 | C0015 |
| 30101892 | C0035 |
| 30101893 | C0035 |
| 30101899 | C0015 |
| 30101901 | K0276 |
| 30101902 | K0276 |
| 30101903 | K0071 |
| 30101904 | K0276 |
| 30101905 | C0035 |
| 30101906 | C0035 |
| 30101907 | C0035 |
| 30102005 | K0072 |
| 30102099 | K0072 |
| 30102102 | C0035 |
| 30102110 | C0035 |
| 30102111 | C0035 |
| 30102113 | K0025 |
| 30102199 | C0049 |
| 30102201 | C0035 |
| 30102301 | C0015 |
| 30102306 | C0049 |
| 30102308 | C0035 |
| 30102310 | C0035 |
| 30102312 | C0035 |
| 30102314 | C0035 |
| 30102318 | C0035 |
| 30102321 | C0035 |
| 30102399 | C0015 |
| 30102401 | K0067 |
| 30102402 | K0068 |
| 30102406 | K0079 |
| 30102410 | K0274 |
| 30102414 | K0068 |
| 30102415 | C0035 |
| 30102499 | K0274 |
| 30102501 | C0015 |
| 30102505 | C0015 |
| 30102599 | C0015 |
| 30102601 | K0272 |
| 30102602 | K0272 |
| 30102608 | K0272 |
| 30102615 | C0035 |
| 30102620 | K0272 |
| 30102624 | C0035 |
| 30102625 | C0035 |
| 30102630 | C0035 |
| 30102699 | K0272 |
| 30102701 | C0049 |
| 30102704 | C0035 |
| 30102705 | C0035 |
| 30102706 | C0049 |
| 30102709 | C0035 |
| 30102711 | C0035 |
| 30102712 | C0035 |
| 30102713 | C0035 |
| 30102717 | C0035 |
| 30102718 | C0035 |
| 30102721 | C0035 |
| 30102722 | C0035 |
| 30102723 | C0035 |
| 30102727 | C0035 |
| 30102728 | C0035 |
| 30102801 | C0049 |
| 30102905 | C0035 |
| 30102906 | K0025 |
| 30102908 | C0035 |
| 30103001 | C0035 |
| 30103002 | C0049 |
| 30103003 | C0035 |
| 30103099 | C0049 |
| 30103101 | C0035 |
| 30103199 | C0035 |
| 30103201 | C0017 |
| 30103202 | C0017 |
| 30103203 | C0035 |
| 30103204 | C0035 |
| 30103299 | C0035 |
| 30103301 | C0024 |
| 30103399 | C0024 |
| 30103401 | C0015 |
| 30103402 | C0035 |
| 30103410 | C0015 |
| 30103415 | C0035 |
| 30103499 | C0015 |
| 30103501 | K0025 |
| 30103550 | C0049 |
| 30103599 | K0079 |
| 30103601 | C0017 |
| 30103999 | C0017 |
| 30104001 | C0049 |
| 30104002 | C0049 |
| 30104003 | C0049 |
| 30104004 | C0049 |
| 30104006 | C0035 |
| 30104101 | C0015 |
| 30104102 | C0035 |
| 30104104 | C0015 |
| 30104199 | C0015 |
| 30104201 | C0035 |
| 30104202 | C0035 |
| 30104203 | C0035 |
| 30104204 | C0035 |
| 30105001 | C0015 |
| 30106001 | C0015 |
| 30106002 | C0015 |
| 30106003 | C0035 |
| 30106004 | C0015 |
| 30106005 | C0015 |
| 30106006 | C0015 |
| 30106007 | C0015 |
| 30106009 | C0015 |
| 30106010 | C0015 |
| 30106099 | C0015 |
| 30109099 | C0015 |
| 30109101 | C0035 |
| 30109199 | C0035 |
| 30110001 | C0017 |
| 30110002 | C0035 |
| 30110099 | C0017 |
| 30111001 | C0017 |
| 30111102 | K0079 |
| 30111199 | K0079 |
| 30112001 | K0002 |
| 30112002 | K0002 |
| 30112011 | C0035 |
| 30112021 | C0035 |
| 30112099 | C0035 |
| 30112501 | K0078 |
| 30112502 | K0078 |
| 30112520 | C0035 |
| 30112530 | C0035 |
| 30112599 | K0078 |
| 30113001 | C0017 |
| 30113004 | K0025 |
| 30113210 | C0035 |
| 30113299 | C0015 |
| 30113799 | C0015 |
| 30115601 | C0035 |
| 30115701 | C0015 |
| 30116799 | C0035 |
| 30116901 | C0035 |
| 30117401 | C0015 |
| 30118101 | C0035 |
| 30119701 | C0035 |
| 30119705 | C0035 |
| 30119710 | C0035 |

TABLE E-3 (continued)

| | |
|---|---|
| 30119799 | C0035 |
| 30120201 | C0035 |
| 30120601 | C0035 |
| 30125001 | K0291 |
| 30125005 | C0035 |
| 30125015 | C0035 |
| 30125020 | C0035 |
| 30125099 | K0079 |
| 30125101 | C0035 |
| 30125301 | C0035 |
| 30125405 | C0035 |
| 30125801 | K0287 |
| 30125810 | K0223 |
| 30125815 | C0035 |
| 30125899 | C0015 |
| 30128501 | C0015 |
| 30130001 | C0015 |
| 30181001 | C0015 |
| 30182001 | C0035 |
| 30183001 | C0049 |
| 30188801 | C0015 |
| 30188802 | C0035 |
| 30188803 | C0035 |
| 30188804 | C0035 |
| 30188805 | C0035 |
| 30190099 | K0079 |
| 30199999 | K0079 |
| 30200101 | C0035 |
| 30200102 | K0211 |
| 30200103 | K0211 |
| 30200104 | K0211 |
| 30200199 | K0211 |
| 30200201 | K0211 |
| 30200202 | K0211 |
| 30200203 | K0211 |
| 30200299 | K0211 |
| 30200301 | K0211 |
| 30200401 | K0211 |
| 30200402 | K0211 |
| 30200403 | K0211 |
| 30200404 | K0211 |
| 30200410 | K0211 |
| 30200499 | C0035 |
| 30200501 | C0032 |
| 30200502 | C0035 |
| 30200503 | K0211 |
| 30200504 | C0032 |
| 30200505 | C0032 |
| 30200506 | C0032 |
| 30200507 | K0211 |
| 30200508 | K0211 |
| 30200509 | K0211 |
| 30200601 | C0035 |
| 30200602 | C0035 |
| 30200603 | C0032 |
| 30200604 | C0032 |
| 30200605 | K0211 |
| 30200606 | C0032 |
| 30200607 | K0211 |
| 30200608 | K0211 |
| 30200699 | C0035 |
| 30200701 | C0032 |
| 30200702 | C0032 |
| 30200703 | K0211 |
| 30200704 | K0211 |
| 30200705 | C0032 |
| 30200711 | K0211 |
| 30200713 | K0211 |
| 30200730 | C0035 |
| 30200731 | K0211 |
| 30200732 | C0032 |
| 30200733 | K0211 |
| 30200734 | C0032 |
| 30200742 | K0211 |
| 30200743 | C0032 |
| 30200744 | C0032 |
| 30200745 | K0211 |
| 30200752 | K0211 |
| 30200754 | C0032 |
| 30200755 | C0032 |
| 30200756 | K0211 |
| 30200760 | C0032 |
| 30200781 | K0211 |
| 30200782 | K0211 |
| 30200784 | K0211 |
| 30200789 | K0211 |
| 30200790 | K0211 |
| 30200799 | C0035 |
| 30200801 | C0035 |
| 30200802 | C0032 |
| 30200803 | C0032 |
| 30200804 | C0032 |
| 30200805 | C0032 |
| 30200806 | C0032 |
| 30200899 | C0035 |
| 30200901 | C0032 |
| 30200902 | C0032 |
| 30200903 | K0211 |
| 30200998 | K0211 |
| 30200999 | K0211 |
| 30201001 | C0032 |
| 30201002 | K0211 |
| 30201003 | K0211 |
| 30201201 | C0032 |
| 30201203 | K0211 |
| 30201299 | C0032 |
| 30201301 | R0001 |
| 30201401 | K0211 |
| 30201501 | K0211 |
| 30201599 | K0211 |
| 30201601 | K0211 |
| 30201799 | K0211 |
| 30201899 | C0032 |
| 30201901 | C0032 |
| 30201902 | C0032 |
| 30201903 | C0032 |
| 30201999 | C0032 |
| 30202001 | C0035 |
| 30202002 | C0035 |
| 30202601 | K0211 |
| 30203001 | K0211 |
| 30203099 | C0032 |
| 30203103 | K0211 |
| 30203104 | C0032 |
| 30203105 | C0032 |
| 30203106 | C0032 |
| 30203109 | K0211 |
| 30203299 | C0032 |
| 30203399 | C0035 |
| 30203601 | C0032 |
| 30288801 | C0032 |
| 30288804 | C0035 |
| 30299998 | C0032 |
| 30299999 | C0032 |
| 30300001 | C0085 |
| 30300101 | K0011 |
| 30300102 | K0011 |
| 30300103 | K0011 |
| 30300104 | C0049 |
| 30300105 | K0011 |
| 30300107 | K0011 |
| 30300199 | K0011 |
| 30300201 | C0049 |
| 30300301 | K0011 |
| 30300302 | K0011 |
| 30300303 | K0011 |
| 30300304 | K0011 |
| 30300305 | K0011 |
| 30300306 | K0011 |
| 30300307 | K0011 |
| 30300308 | K0011 |
| 30300309 | K0011 |
| 30300310 | K0011 |
| 30300311 | C0049 |
| 30300312 | K0011 |
| 30300313 | K0011 |
| 30300316 | K0011 |
| 30300399 | K0011 |
| 30300401 | K0011 |
| 30300502 | K0012 |
| 30300503 | K0012 |
| 30300504 | K0012 |
| 30300505 | K0012 |
| 30300506 | K0012 |
| 30300507 | K0012 |
| 30300508 | K0012 |
| 30300509 | K0012 |
| 30300510 | K0012 |
| 30300512 | K0012 |
| 30300513 | K0012 |
| 30300515 | K0012 |
| 30300521 | K0012 |
| 30300523 | K0012 |
| 30300599 | K0012 |
| 30300601 | K0012 |
| 30300602 | K0012 |
| 30300603 | K0012 |
| 30300604 | K0012 |
| 30300605 | K0012 |
| 30300610 | K0012 |
| 30300611 | K0012 |
| 30300614 | K0012 |
| 30300616 | K0012 |
| 30300699 | K0012 |
| 30300701 | K0012 |
| 30300702 | K0012 |

TABLE E-3 (continued)

| | |
|---|---|
| 30300801 | K0012 |
| 30300802 | K0012 |
| 30300803 | K0013 |
| 30300805 | K0012 |
| 30300807 | K0012 |
| 30300808 | K0012 |
| 30300809 | K0012 |
| 30300811 | K0012 |
| 30300812 | K0012 |
| 30300813 | K0013 |
| 30300814 | K0012 |
| 30300815 | K0012 |
| 30300817 | K0012 |
| 30300823 | K0012 |
| 30300824 | K0012 |
| 30300825 | K0012 |
| 30300899 | C0085 |
| 30300901 | K0306 |
| 30300903 | K0016 |
| 30300904 | K0016 |
| 30300906 | K0016 |
| 30300908 | K0012 |
| 30300910 | K0016 |
| 30300911 | K0016 |
| 30300912 | K0016 |
| 30300913 | K0016 |
| 30300914 | K0016 |
| 30300915 | K0016 |
| 30300916 | K0016 |
| 30300917 | K0016 |
| 30300918 | K0306 |
| 30300919 | K0306 |
| 30300920 | K0306 |
| 30300922 | C0085 |
| 30300923 | K0306 |
| 30300924 | K0306 |
| 30300931 | K0306 |
| 30300932 | K0306 |
| 30300933 | K0306 |
| 30300934 | C0085 |
| 30300935 | C0085 |
| 30300999 | C0085 |
| 30301001 | K0013 |
| 30301002 | C0085 |
| 30301004 | K0016 |
| 30301005 | C0085 |
| 30301016 | K0013 |
| 30301017 | K0013 |
| 30301024 | K0013 |
| 30301099 | C0035 |
| 30301199 | C0035 |
| 30301201 | C0035 |
| 30301301 | C0031 |
| 30301401 | C0035 |
| 30301403 | C0035 |
| 30301499 | C0035 |
| 30302301 | C0031 |
| 30302302 | C0031 |
| 30302304 | C0031 |
| 30302310 | C0031 |
| 30302312 | C0031 |
| 30302314 | C0031 |
| 30302402 | C0031 |
| 30302404 | C0031 |
| 30302411 | C0031 |
| 30303002 | C0085 |
| 30303003 | K0011 |
| 30303005 | K0011 |
| 30303009 | C0085 |
| 30303012 | K0011 |
| 30303051 | C0031 |
| 30303099 | C0035 |
| 30388801 | K0012 |
| 30388802 | C0035 |
| 30399999 | C0085 |
| 30400101 | C0086 |
| 30400102 | C0086 |
| 30400103 | C0086 |
| 30400104 | C0086 |
| 30400106 | C0086 |
| 30400107 | C0086 |
| 30400108 | C0086 |
| 30400109 | C0086 |
| 30400110 | C0086 |
| 30400111 | C0086 |
| 30400120 | C0086 |
| 30400150 | C0086 |
| 30400199 | C0086 |
| 30400204 | C0035 |
| 30400212 | C0086 |
| 30400215 | C0086 |
| 30400217 | C0086 |
| 30400219 | C0086 |
| 30400223 | C0086 |
| 30400224 | C0086 |
| 30400230 | C0086 |
| 30400238 | C0086 |
| 30400299 | C0086 |
| 30400301 | C0085 |
| 30400302 | C0085 |
| 30400303 | C0085 |
| 30400304 | C0085 |
| 30400315 | C0085 |
| 30400320 | C0085 |
| 30400325 | C0085 |
| 30400330 | C0085 |
| 30400331 | C0085 |
| 30400340 | C0085 |
| 30400350 | C0085 |
| 30400351 | C0085 |
| 30400352 | C0085 |
| 30400353 | C0085 |
| 30400360 | C0085 |
| 30400399 | C0085 |
| 30400401 | C0086 |
| 30400402 | C0086 |
| 30400403 | C0086 |
| 30400404 | C0086 |
| 30400407 | C0086 |
| 30400408 | C0086 |
| 30400409 | C0086 |
| 30400499 | C0086 |
| 30400501 | K0079 |
| 30400502 | K0079 |
| 30400503 | K0079 |
| 30400506 | K0079 |
| 30400507 | K0079 |
| 30400509 | K0079 |
| 30400699 | K0025 |
| 30400701 | C0085 |
| 30400702 | C0085 |
| 30400703 | C0085 |
| 30400704 | C0085 |
| 30400705 | C0085 |
| 30400706 | C0085 |
| 30400707 | C0085 |
| 30400708 | C0085 |
| 30400709 | C0085 |
| 30400710 | C0085 |
| 30400715 | C0085 |
| 30400799 | C0085 |
| 30400802 | C0086 |
| 30400805 | C0086 |
| 30400806 | C0086 |
| 30400824 | C0086 |
| 30400899 | C0086 |
| 30400999 | C0035 |
| 30401001 | C0086 |
| 30401099 | C0086 |
| 30402002 | K0079 |
| 30402004 | K0079 |
| 30402099 | K0079 |
| 30402201 | C0086 |
| 30403499 | C0035 |
| 30405001 | C0086 |
| 30488801 | C0035 |
| 30499999 | C0086 |
| 30500101 | K0021 |
| 30500102 | K0022 |
| 30500104 | K0022 |
| 30500105 | K0022 |
| 30500199 | K0024 |
| 30500201 | K0025 |
| 30500202 | K0025 |
| 30500203 | K0025 |
| 30500204 | K0025 |
| 30500205 | K0025 |
| 30500206 | K0025 |
| 30500207 | K0025 |
| 30500208 | K0025 |
| 30500299 | K0025 |
| 30500301 | C0031 |
| 30500302 | C0031 |
| 30500303 | C0031 |
| 30500304 | K0025 |
| 30500305 | K0025 |
| 30500308 | C0031 |
| 30500309 | C0031 |
| 30500311 | K0025 |
| 30500312 | K0002 |
| 30500313 | R0001 |
| 30500314 | K0025 |
| 30500315 | K0002 |
| 30500316 | R0001 |
| 30500399 | C0031 |
| 30500401 | C0035 |

## TABLE E-3 (continued)

| | |
|---|---|
| 30500403 | C0035 |
| 30500501 | K0025 |
| 30500502 | C0031 |
| 30500503 | C0031 |
| 30500504 | C0031 |
| 30500505 | C0031 |
| 30500599 | C0031 |
| 30500606 | K0001 |
| 30500607 | C0031 |
| 30500608 | C0031 |
| 30500609 | C0031 |
| 30500610 | C0031 |
| 30500611 | C0031 |
| 30500612 | C0031 |
| 30500613 | C0031 |
| 30500614 | C0031 |
| 30500615 | C0031 |
| 30500616 | C0031 |
| 30500617 | C0031 |
| 30500618 | C0031 |
| 30500619 | C0031 |
| 30500699 | C0035 |
| 30500705 | C0031 |
| 30500706 | K0001 |
| 30500707 | C0031 |
| 30500708 | C0031 |
| 30500709 | C0031 |
| 30500710 | C0031 |
| 30500711 | C0031 |
| 30500712 | C0031 |
| 30500714 | C0031 |
| 30500715 | C0031 |
| 30500716 | C0031 |
| 30500717 | C0031 |
| 30500718 | C0031 |
| 30500719 | C0031 |
| 30500799 | C0035 |
| 30500801 | K0001 |
| 30500802 | C0031 |
| 30500803 | C0031 |
| 30500899 | C0031 |
| 30500901 | K0025 |
| 30500902 | C0031 |
| 30500903 | C0031 |
| 30500904 | C0031 |
| 30500905 | C0031 |
| 30500906 | C0031 |
| 30500907 | C0031 |
| 30500999 | C0031 |
| 30501001 | R0001 |
| 30501002 | R0001 |
| 30501003 | R0001 |
| 30501004 | R0001 |
| 30501007 | K0025 |
| 30501008 | R0001 |
| 30501009 | R0001 |
| 30501010 | R0001 |
| 30501011 | R0001 |
| 30501012 | R0001 |
| 30501013 | R0001 |
| 30501014 | R0001 |
| 30501015 | R0001 |
| 30501021 | R0001 |
| 30501023 | R0001 |
| 30501024 | R0001 |
| 30501099 | R0001 |
| 30501101 | C0031 |
| 30501107 | C0031 |
| 30501108 | C0031 |
| 30501110 | C0031 |
| 30501111 | C0031 |
| 30501120 | C0031 |
| 30501199 | C0031 |
| 30501201 | C0031 |
| 30501202 | C0031 |
| 30501203 | C0031 |
| 30501204 | C0031 |
| 30501205 | C0031 |
| 30501206 | C0031 |
| 30501215 | C0031 |
| 30501299 | C0031 |
| 30501399 | C0031 |
| 30501401 | K0025 |
| 30501402 | K0025 |
| 30501403 | K0025 |
| 30501404 | C0031 |
| 30501406 | C0031 |
| 30501407 | C0031 |
| 30501408 | C0031 |
| 30501410 | C0031 |
| 30501411 | C0031 |
| 30501412 | C0031 |
| 30501499 | K0025 |
| 30501501 | C0031 |
| 30501502 | C0031 |
| 30501503 | R0001 |
| 30501504 | C0031 |
| 30501505 | C0031 |
| 30501508 | C0031 |
| 30501520 | C0031 |
| 30501599 | C0031 |
| 30501601 | C0031 |
| 30501602 | C0031 |
| 30501603 | R0001 |
| 30501604 | R0001 |
| 30501605 | R0001 |
| 30501606 | R0001 |
| 30501607 | C0031 |
| 30501608 | C0031 |
| 30501610 | C0031 |
| 30501611 | C0031 |
| 30501612 | C0031 |
| 30501613 | C0031 |
| 30501614 | C0031 |
| 30501615 | C0031 |
| 30501616 | C0031 |
| 30501699 | C0031 |
| 30501701 | C0086 |
| 30501703 | C0086 |
| 30501704 | C0086 |
| 30501705 | C0086 |
| 30501799 | C0086 |
| 30501801 | C0031 |
| 30501899 | C0031 |
| 30501901 | K0025 |
| 30501902 | C0031 |
| 30501903 | C0031 |
| 30501905 | C0031 |
| 30501999 | C0031 |
| 30502001 | C0031 |
| 30502002 | C0031 |
| 30502003 | C0031 |
| 30502004 | C0031 |
| 30502005 | C0031 |
| 30502006 | C0031 |
| 30502007 | C0031 |
| 30502008 | C0031 |
| 30502009 | C0031 |
| 30502010 | C0031 |
| 30502011 | C0031 |
| 30502012 | C0031 |
| 30502099 | C0031 |
| 30502101 | C0031 |
| 30502201 | C0031 |
| 30502299 | K0025 |
| 30502401 | C0031 |
| 30502501 | C0031 |
| 30502502 | C0031 |
| 30502503 | C0031 |
| 30502504 | C0031 |
| 30502508 | K0025 |
| 30502599 | C0035 |
| 30502601 | C0031 |
| 30502699 | C0031 |
| 30503099 | C0031 |
| 30503101 | C0031 |
| 30503104 | C0031 |
| 30503105 | C0031 |
| 30503106 | C0031 |
| 30503107 | C0031 |
| 30503110 | C0031 |
| 30503111 | C0031 |
| 30503201 | C0031 |
| 30503202 | C0031 |
| 30503203 | C0031 |
| 30503204 | C0031 |
| 30503205 | C0031 |
| 30503206 | C0031 |
| 30503299 | C0031 |
| 30504020 | C0031 |
| 30504021 | C0031 |
| 30504022 | C0031 |
| 30504023 | C0031 |
| 30504025 | C0031 |
| 30504030 | C0031 |
| 30504031 | C0031 |
| 30504032 | C0031 |
| 30504033 | K0025 |
| 30504034 | C0031 |
| 30504099 | C0031 |
| 30510002 | C0031 |
| 30510003 | C0031 |
| 30510004 | C0031 |
| 30510399 | C0035 |
| 30588801 | C0035 |
| 30599999 | C0031 |

## TABLE E-3 (continued)

| | |
|---|---|
| 30600101 | K0001 |
| 30600102 | K0003 |
| 30600103 | K0001 |
| 30600104 | K0003 |
| 30600105 | K0003 |
| 30600201 | K0029 |
| 30600301 | K0029 |
| 30600401 | K0079 |
| 30600402 | K0053 |
| 30600501 | K0031 |
| 30600502 | K0031 |
| 30600503 | K0031 |
| 30600504 | K0031 |
| 30600505 | K0031 |
| 30600506 | K0031 |
| 30600602 | K0031 |
| 30600603 | K0029 |
| 30600701 | K0035 |
| 30600702 | K0035 |
| 30600801 | K0316 |
| 30600802 | K0047 |
| 30600803 | K0321 |
| 30600804 | K0039 |
| 30600805 | K0031 |
| 30600806 | K0029 |
| 30600807 | K0029 |
| 30600901 | K0051 |
| 30600999 | K0051 |
| 30601001 | C0035 |
| 30601101 | K0053 |
| 30601201 | K0029 |
| 30601401 | K0025 |
| 30601613 | K0029 |
| 30610001 | C0035 |
| 30688801 | K0316 |
| 30688802 | K0079 |
| 30688803 | C0035 |
| 30699898 | K0316 |
| 30699998 | K0316 |
| 30699999 | K0316 |
| 30700101 | C0025 |
| 30700103 | C0025 |
| 30700104 | C0025 |
| 30700105 | C0025 |
| 30700106 | K0025 |
| 30700107 | C0025 |
| 30700108 | C0025 |
| 30700110 | C0025 |
| 30700199 | C0025 |
| 30700203 | C0025 |
| 30700211 | C0025 |
| 30700212 | C0025 |
| 30700221 | C0025 |
| 30700222 | C0025 |
| 30700223 | C0025 |
| 30700232 | C0025 |
| 30700233 | C0025 |
| 30700234 | C0025 |
| 30700299 | C0025 |
| 30700301 | C0025 |
| 30700302 | C0025 |
| 30700401 | C0025 |
| 30700402 | C0025 |
| 30700499 | C0025 |
| 30700501 | C0025 |
| 30700599 | C0025 |
| 30700701 | C0025 |
| 30700702 | C0025 |
| 30700703 | C0025 |
| 30700799 | C0025 |
| 30700804 | C0025 |
| 30700806 | C0025 |
| 30700898 | C0025 |
| 30700899 | C0025 |
| 30701199 | K0096 |
| 30701399 | C0025 |
| 30702099 | C0025 |
| 30703001 | C0025 |
| 30703002 | C0025 |
| 30703099 | C0025 |
| 30788801 | C0025 |
| 30788802 | C0025 |
| 30788803 | C0025 |
| 30788804 | C0025 |
| 30788805 | C0025 |
| 30799999 | C0025 |
| 30800101 | K0272 |
| 30800102 | K0274 |
| 30800105 | K0274 |
| 30800106 | K0273 |
| 30800107 | K0274 |
| 30800108 | K0272 |
| 30800197 | K0079 |
| 30800198 | K0272 |
| 30800199 | K0274 |
| 30800699 | K0272 |
| 30800799 | C0025 |
| 30890246 | K0274 |
| 30900001 | C0005 |
| 30900199 | C0086 |
| 30900201 | C0005 |
| 30900202 | C0005 |
| 30900205 | C0005 |
| 30900299 | C0005 |
| 30901001 | C0005 |
| 30901099 | C0005 |
| 30901102 | C0005 |
| 30901103 | C0005 |
| 30902099 | C0086 |
| 30903001 | C0005 |
| 30903002 | C0005 |
| 30903003 | C0005 |
| 30903004 | C0035 |
| 30903005 | C0005 |
| 30903099 | C0005 |
| 30906001 | C0035 |
| 30988801 | C0005 |
| 30999999 | K0060 |
| 31000199 | C0035 |
| 31000201 | K0004 |
| 31000202 | K0004 |
| 31000203 | K0004 |
| 31000205 | K0079 |
| 31000299 | K0079 |
| 31000404 | K0004 |
| 31000414 | K0004 |
| 31088805 | K0079 |
| 32099199 | K0060 |
| 32099998 | C0090 |
| 32099999 | K0060 |
| 33000101 | K0060 |
| 33000102 | K0060 |
| 33000103 | K0060 |
| 33000104 | K0060 |
| 33000199 | K0060 |
| 33000201 | K0096 |
| 33000202 | K0096 |
| 33000203 | K0096 |
| 33000298 | K0096 |
| 33000299 | K0096 |
| 33000399 | K0060 |
| 33000499 | C0035 |
| 39000199 | R0001 |
| 39000201 | R0001 |
| 39000203 | R0001 |
| 39000299 | R0001 |
| 39000402 | K0001 |
| 39000403 | K0001 |
| 39000408 | K0001 |
| 39000489 | C0035 |
| 39000499 | K0001 |
| 39000501 | K0002 |
| 39000502 | K0002 |
| 39000503 | K0002 |
| 39000589 | C0035 |
| 39000599 | K0002 |
| 39000602 | K0003 |
| 39000603 | K0003 |
| 39000605 | C0035 |
| 39000608 | K0003 |
| 39000689 | C0035 |
| 39000690 | K0003 |
| 39000699 | K0003 |
| 39000701 | K0217 |
| 39000702 | K0217 |
| 39000789 | C0035 |
| 39000797 | K0217 |
| 39000798 | K0217 |
| 39000799 | K0217 |
| 39000801 | R0001 |
| 39000899 | C0035 |
| 39000999 | C0035 |
| 39001099 | K0003 |
| 39001299 | C0035 |
| 39001399 | C0035 |
| 39099997 | K0003 |
| 39099999 | K0003 |
| 39999998 | C0035 |
| 39999999 | K0003 |
| 40100101 | K0085 |
| 40100102 | K0086 |
| 40100103 | K0085 |
| 40100104 | K0086 |
| 40100105 | K0088 |
| 40100199 | K0085 |
| 40100201 | K0086 |

## TABLE E-3 (continued)

| | |
|---|---|
| 40100202 | K0087 |
| 40100203 | K0085 |
| 40100204 | K0275 |
| 40100205 | K0271 |
| 40100206 | K0090 |
| 40100207 | K0088 |
| 40100225 | K0271 |
| 40100299 | K0087 |
| 40100303 | K0271 |
| 40100306 | K0271 |
| 40100399 | C0035 |
| 40188801 | K0088 |
| 40188802 | C0035 |
| 40188898 | K0085 |
| 40191302 | C0026 |
| 40191303 | K0085 |
| 40191304 | C0026 |
| 40199999 | K0090 |
| 40200101 | K0125 |
| 40200102 | K0125 |
| 40200103 | K0125 |
| 40200110 | K0125 |
| 40200199 | K0125 |
| 40200201 | C0111 |
| 40200205 | C0111 |
| 40200210 | C0110 |
| 40200299 | C0111 |
| 40200301 | K0127 |
| 40200310 | K0127 |
| 40200399 | K0127 |
| 40200401 | K0148 |
| 40200402 | K0147 |
| 40200403 | K0148 |
| 40200406 | K0148 |
| 40200410 | K0147 |
| 40200499 | K0147 |
| 40200501 | K0156 |
| 40200502 | K0156 |
| 40200503 | K0156 |
| 40200504 | K0156 |
| 40200505 | K0156 |
| 40200510 | K0156 |
| 40200599 | K0156 |
| 40200601 | K0134 |
| 40200603 | K0134 |
| 40200604 | K0134 |
| 40200610 | K0134 |
| 40200699 | K0134 |
| 40200701 | K0141 |
| 40200705 | K0141 |
| 40200706 | K0141 |
| 40200710 | K0141 |
| 40200799 | K0141 |
| 40200801 | K0092 |
| 40200802 | K0092 |
| 40200803 | K0092 |
| 40200810 | K0092 |
| 40200821 | K0092 |
| 40200898 | K0092 |
| 40200899 | K0162 |
| 40200901 | K0096 |
| 40200902 | K0219 |
| 40200903 | K0288 |
| 40200904 | K0289 |
| 40200905 | K0096 |
| 40200906 | K0290 |
| 40200907 | K0222 |
| 40200908 | K0292 |
| 40200909 | K0220 |
| 40200910 | K0226 |
| 40200911 | K0038 |
| 40200912 | K0227 |
| 40200913 | K0228 |
| 40200914 | C0035 |
| 40200915 | K0229 |
| 40200916 | X0012 |
| 40200917 | K0291 |
| 40200918 | K0221 |
| 40200919 | X0005 |
| 40200920 | K0283 |
| 40200921 | K0282 |
| 40200922 | K0090 |
| 40200923 | C0035 |
| 40200924 | K0223 |
| 40200925 | K0287 |
| 40200998 | K0096 |
| 40201001 | K0220 |
| 40201004 | C0035 |
| 40201101 | K0096 |
| 40201103 | K0096 |
| 40201301 | K0096 |
| 40201399 | K0149 |
| 40201437 | C0035 |
| 40201601 | K0134 |
| 40201606 | K0096 |
| 40201632 | C0035 |
| 40201702 | K0096 |
| 40201705 | K0096 |
| 40201721 | K0096 |
| 40201722 | K0096 |
| 40201723 | K0096 |
| 40201725 | K0096 |
| 40201726 | K0333 |
| 40201727 | K0127 |
| 40201728 | K0127 |
| 40201799 | K0096 |
| 40201801 | K0134 |
| 40201806 | K0096 |
| 40201901 | K0157 |
| 40201999 | C0035 |
| 40202001 | X0010 |
| 40202031 | C0035 |
| 40202101 | K0096 |
| 40202103 | K0096 |
| 40202106 | K0096 |
| 40202107 | K0096 |
| 40202108 | K0096 |
| 40202109 | K0096 |
| 40202199 | K0096 |
| 40202201 | C0035 |
| 40202205 | C0035 |
| 40202301 | K0134 |
| 40202306 | K0096 |
| 40202401 | K0134 |
| 40202406 | K0096 |
| 40202499 | C0035 |
| 40202501 | K0096 |
| 40202502 | K0096 |
| 40202532 | K0096 |
| 40202535 | K0096 |
| 40202599 | K0096 |
| 40288801 | K0096 |
| 40290101 | K0096 |
| 40290104 | K0096 |
| 40290106 | K0096 |
| 40290302 | C0044 |
| 40290304 | K0096 |
| 40290305 | C0044 |
| 40290306 | C0044 |
| 40290404 | C0044 |
| 40290601 | K0096 |
| 40290603 | C0044 |
| 40290604 | K0096 |
| 40290701 | K0096 |
| 40290702 | C0044 |
| 40290703 | C0044 |
| 40290806 | C0044 |
| 40290809 | C0044 |
| 40299998 | K0294 |
| 40299999 | K0293 |
| 40300002 | K0098 |
| 40300101 | K0098 |
| 40300102 | K0296 |
| 40300103 | K0098 |
| 40300104 | K0297 |
| 40300105 | K0100 |
| 40300106 | K0100 |
| 40300107 | K0100 |
| 40300108 | K0298 |
| 40300109 | C0035 |
| 40300111 | K0301 |
| 40300112 | K0230 |
| 40300115 | C0035 |
| 40300116 | K0185 |
| 40300150 | K0100 |
| 40300151 | K0100 |
| 40300152 | K0100 |
| 40300153 | K0298 |
| 40300154 | C0035 |
| 40300156 | C0035 |
| 40300157 | K0230 |
| 40300160 | K0303 |
| 40300161 | K0185 |
| 40300198 | K0188 |
| 40300199 | K0100 |
| 40300201 | K0098 |
| 40300202 | K0098 |
| 40300203 | K0297 |
| 40300204 | K0297 |
| 40300205 | K0100 |
| 40300206 | K0100 |
| 40300207 | K0100 |
| 40300208 | K0298 |
| 40300211 | K0301 |
| 40300212 | K0230 |
| 40300216 | K0185 |

TABLE E-3 (continued)

| | |
|---|---|
| 40300299 | K0100 |
| 40300302 | K0098 |
| 40300304 | K0100 |
| 40300305 | C0091 |
| 40300306 | K0298 |
| 40300310 | C0094 |
| 40300312 | K0231 |
| 40300398 | C0091 |
| 40300399 | K0232 |
| 40301001 | K0098 |
| 40301002 | K0098 |
| 40301003 | K0098 |
| 40301004 | K0098 |
| 40301007 | K0098 |
| 40301008 | K0098 |
| 40301009 | K0098 |
| 40301010 | K0297 |
| 40301011 | K0297 |
| 40301012 | K0297 |
| 40301013 | K0098 |
| 40301014 | K0303 |
| 40301015 | K0100 |
| 40301016 | K0100 |
| 40301017 | K0100 |
| 40301018 | K0100 |
| 40301019 | K0100 |
| 40301020 | K0100 |
| 40301021 | K0100 |
| 40301097 | K0098 |
| 40301099 | K0098 |
| 40301101 | K0098 |
| 40301102 | K0098 |
| 40301103 | K0098 |
| 40301104 | K0098 |
| 40301105 | K0098 |
| 40301106 | K0098 |
| 40301107 | K0098 |
| 40301108 | K0098 |
| 40301109 | K0098 |
| 40301110 | K0098 |
| 40301111 | K0100 |
| 40301112 | K0100 |
| 40301113 | K0100 |
| 40301115 | C0091 |
| 40301117 | K0297 |
| 40301120 | C0091 |
| 40301151 | K0098 |
| 40301197 | K0098 |
| 40301198 | K0098 |
| 40301199 | K0098 |
| 40301201 | K0098 |
| 40301202 | K0098 |
| 40301203 | K0098 |
| 40301204 | K0100 |
| 40301206 | K0100 |
| 40301299 | K0098 |
| 40302001 | C0091 |
| 40309103 | K0098 |
| 40388801 | C0091 |
| 40399999 | K0100 |
| 40400101 | K0098 |
| 40400102 | K0098 |
| 40400103 | K0098 |
| 40400104 | K0098 |
| 40400105 | K0098 |
| 40400107 | K0098 |
| 40400108 | K0098 |
| 40400109 | K0098 |
| 40400110 | K0098 |
| 40400111 | K0098 |
| 40400112 | K0098 |
| 40400113 | K0098 |
| 40400114 | K0098 |
| 40400115 | K0098 |
| 40400116 | K0098 |
| 40400118 | K0098 |
| 40400119 | K0098 |
| 40400120 | K0098 |
| 40400153 | K0098 |
| 40400156 | K0098 |
| 40400161 | K0098 |
| 40400199 | K0098 |
| 40400201 | K0098 |
| 40400202 | K0098 |
| 40400204 | K0098 |
| 40400205 | K0098 |
| 40400207 | K0098 |
| 40400209 | K0098 |
| 40400210 | K0098 |
| 40400212 | K0098 |
| 40400250 | K0098 |
| 40401199 | K0098 |
| 40401999 | K0098 |
| 40499999 | K0098 |
| 40500101 | K0334 |
| 40500199 | K0334 |
| 40500201 | K0334 |
| 40500202 | K0100 |
| 40500203 | K0283 |
| 40500299 | K0166 |
| 40500301 | K0172 |
| 40500303 | K0290 |
| 40500304 | K0226 |
| 40500305 | K0227 |
| 40500306 | K0172 |
| 40500307 | K0282 |
| 40500311 | K0172 |
| 40500401 | C0035 |
| 40500411 | C0035 |
| 40500499 | K0333 |
| 40500501 | K0181 |
| 40500503 | K0220 |
| 40500506 | K0221 |
| 40500507 | K0221 |
| 40500510 | K0096 |
| 40500511 | K0181 |
| 40500598 | K0182 |
| 40500599 | K0182 |
| 40500601 | X0012 |
| 40560101 | C0113 |
| 40588801 | C0113 |
| 40600101 | K0100 |
| 40600104 | K0098 |
| 40600105 | K0098 |
| 40600126 | K0098 |
| 40600127 | K0098 |
| 40600129 | K0098 |
| 40600130 | K0098 |
| 40600131 | K0098 |
| 40600132 | K0297 |
| 40600133 | K0100 |
| 40600134 | K0100 |
| 40600135 | K0100 |
| 40600136 | K0098 |
| 40600137 | K0297 |
| 40600138 | K0100 |
| 40600139 | K0100 |
| 40600140 | K0100 |
| 40600141 | K0098 |
| 40600143 | K0100 |
| 40600144 | K0098 |
| 40600146 | K0100 |
| 40600147 | K0098 |
| 40600148 | K0297 |
| 40600149 | K0100 |
| 40600151 | K0098 |
| 40600197 | C0010 |
| 40600198 | C0010 |
| 40600199 | C0010 |
| 40600231 | K0098 |
| 40600232 | K0098 |
| 40600233 | K0098 |
| 40600234 | K0098 |
| 40600236 | K0098 |
| 40600238 | K0098 |
| 40600239 | K0098 |
| 40600240 | K0098 |
| 40600241 | K0098 |
| 40600242 | K0098 |
| 40600243 | K0297 |
| 40600244 | K0100 |
| 40600245 | K0098 |
| 40600246 | K0100 |
| 40600248 | K0297 |
| 40600249 | K0100 |
| 40600250 | K0098 |
| 40600251 | K0100 |
| 40600253 | K0305 |
| 40600255 | K0100 |
| 40600298 | C0035 |
| 40600299 | C0035 |
| 40600301 | K0098 |
| 40600302 | K0098 |
| 40600303 | K0098 |
| 40600305 | K0098 |
| 40600306 | K0098 |
| 40600307 | K0098 |
| 40600399 | K0098 |
| 40600401 | K0098 |
| 40600402 | K0098 |
| 40600403 | K0098 |
| 40600499 | K0098 |
| 40688801 | K0098 |
| 40999999 | K0098 |
| 49000105 | X0003 |
| 49000199 | X0003 |

TABLE E-3 (continued)

| | |
|---|---|
| 49000299 | X0003 |
| 49099998 | C0035 |
| 49099999 | X0003 |
| 50100101 | C0051 |
| 50100102 | C0051 |
| 50100199 | C0051 |
| 50100201 | K0121 |
| 50100202 | K0121 |
| 50100506 | K0122 |
| 50100507 | C0051 |
| 50100508 | C0051 |
| 50100599 | C0051 |
| 50190005 | C0051 |
| 50190006 | C0051 |
| 50190010 | C0051 |
| 50199999 | C0035 |
| 50200101 | K0122 |
| 50200102 | K0121 |
| 50200103 | K0121 |
| 50200104 | C0051 |
| 50200105 | C0051 |
| 50200106 | C0051 |
| 50200201 | C0051 |
| 50200301 | C0051 |
| 50200399 | K0121 |
| 50200505 | C0051 |
| 50200506 | K0122 |
| 50200599 | C0051 |
| 50290005 | C0051 |
| 50290006 | K0003 |
| 50290010 | C0051 |
| 50300101 | C0051 |
| 50300102 | C0051 |
| 50300103 | C0051 |
| 50300104 | C0051 |
| 50300105 | C0051 |
| 50300106 | K0121 |
| 50300108 | C0051 |
| 50300199 | C0035 |
| 50300201 | K0121 |
| 50300202 | K0121 |
| 50300203 | C0051 |
| 50300506 | K0122 |
| 50300599 | K0122 |
| 50300701 | K0079 |
| 50390005 | C0051 |
| 50390006 | C0051 |
| 50390010 | C0051 |
| 59999999 | C0051 |
| 60199998 | K0195 |

## TABLE E-4. SPECIES/PROFILE ASSIGNMENTS, 1980 NAPAP INVENTORY VERSION 5.2

```
 1:C0004     90.00  10.00   5.16  C0004                               2
 2:C0004  43201      1.96     16.04  METHANE-                         13
 3:C0004  43203      6.15     28.05  ETHYLENE                         23
 4:C0004  43205      1.71     42.08  PROPYLENE                        33
 5:C0004  43206      0.65     26.04  ACETYLENE                        43
 6:C0004  43215      0.89     56.12  ISOBUTYLENE                      53
 7:C0004  43224      3.79     70.14  1-PENTENE                        63
 8:C0004  43232      0.23    100.21  N-HEPTANE                        73
 9:C0004  43235      1.30    128.26  N-NONANE                         83
10:C0004  43238      1.93    142.29  N-DECANE                         93
11:C0004  43241      4.06    156.32  N-UNDECANE                      103
12:C0004  43255      7.32    170.34  N-DODECANE                      113
13:C0004  43258      6.04    184.37  N-TRIDECANE                     123
14:C0004  43259      6.50    198.40  N-TETRADECANE                   133
15:C0004  43260      6.00    212.42  N-PENTADECANE                   143
16:C0004  43281      5.37    226.45  N-HEXADECANE                    153
17:C0004  43282      3.80    240.48  N-HEPTADECANE                   163
18:C0004  43283      3.16    254.51  N-OCTADECANE                    173
19:C0004  43284      2.43    268.53  N-NONADECANE                    183
20:C0004  43285      2.55    282.56  N-EICOSANE                      193
21:C0004  43286      1.34    296.59  N-HENEICOSANE                   203
22:C0004  43287      0.70    310.61  N-DOCOSANE                      213
23:C0004  43502      5.16     30.03  FORMALDEHYDE                    223
24:C0004  43503     14.80     44.05  ACETALDEHYDE                    233
25:C0004  45202      0.21     92.15  TOLUENE                         243
26:C0004  45207      0.27    120.19  1,3,5-TRIMETHYLBENZENE          253
27:C0004  45221     11.42    118.15  A-METHYLSTYRENE                 263
28:C0005     00.00  00.00  09.36       C0005                          2
29:C0005  43105       .42     86.18  ISOMERS OF HEXANE                13
30:C0005  43106       .11    100.21  ISOMERS OF HEPTANE               23
31:C0005  43107       .2C    114.23  ISOMERS OF OCTANE                33
32:C0005  43122      2.05     72.15  ISOMERS OF PENTANE               43
33:C0005  43201     27.77     16.04  METHANE                          53
34:C0005  43202       .03     30.07  ETHANE                           63
35:C0005  43204      1.30     44.09  PROPANE                          73
36:C0005  43205      3.97     42.08  PROPYLENE                        83
37:C0005  43206       .51     26.04  ACETYLENE                        93
38:C0005  43212      2.59     58.12  N-BUTANE                        103
39:C0005  43213      1.45     56.10  BUTENE                          113
40:C0005  43214       .21     58.12  ISOBUTANE                       123
41:C0005  43220      2.39     72.15  N-PENTANE                       133
42:C0005  43224      4.04     70.14  1-PENTENE                       143
43:C0005  43231       .47     86.18  N-HEXANE                        153
44:C0005  43232       .01    100.21  N-HEPTANE                       163
45:C0005  43248       .20     84.16  CYCLOHEXANE                     173
46:C0005  43301      1.09     32.04  METHYL ALCOHOL                  183
47:C0005  43302       .87     46.07  ETHYL ALCOHOL                   193
48:C0005  43304      3.18     60.09  ISOPROPYL ALCOHOL               203
49:C0005  43305      4.56     74.12  N-BUTYL ALCOHOL                 213
50:C0005  43502      9.36     30.03  FORMALDEHYDE                    223
51:C0005  43551     13.14     58.08  ACETONE                         233
52:C0005  43552     13.02     72.10  METHYL ETHYL KETONE             243
53:C0005  43560      5.17    100.16  METHYL ISOBUTYL KETONE          253
54:C0005  45101       .69    114.00  NAPHTHA                         263
55:C0005  45201       .81     78.12  BENZENE                         273
56:C0005  45202       .40     92.15  TOLUENE                         283
57:C0010                   00.03     C0010                            2
58:C0010  43201     83.53     16.04  METHANE                          13
59:C0010  43202     10.94     30.07  ETHANE                           23
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 60:C0010 | 43203 | .03 | 28.05 | ETHYLENE | 33 |
| 61:C0010 | 43204 | 3.81 | 44.09 | PROPANE | 43 |
| 62:C0010 | 43212 | .52 | 58.12 | N-BUTANE | 53 |
| 63:C0010 | 43214 | .42 | 58.12 | ISOBUTANE | 63 |
| [illegible]0010 | 43220 | .10 | 72.15 | N-PENTANE | 73 |
| 65:C0010 | 43231 | .10 | 86.18 | N-HEXANE | 83 |
| 66:C0010 | 43232 | .10 | 100.21 | N-HEPTANE | 93 |
| 67:C0010 | 43248 | .10 | 84.16 | CYCLOHEXANE | 103 |
| 68:C0010 | 43108 | .03 | 128.26 | ISOMERS OF NONANE | 113 |
| 69:C0010 | 43109 | .07 | 142.29 | ISOMERS OF DECANE | 123 |
| 70:C0010 | 43122 | .10 | 72.15 | ISOMERS OF PENTANE | 133 |
| 71:C0010 | 43301 | .01 | 32.04 | METHYL ALCOHOL | 143 |
| 72:C0010 | 43302 | .01 | 46.07 | ETHYL ALCOHOL | 153 |
| 73:C0010 | 43304 | .01 | 60.09 | ISOPROPYL ALCOHOL | 163 |
| 74:C0010 | 43502 | .03 | 30.03 | FORMALDEHYDE | 173 |
| 75:C0010 | 43551 | .02 | 58.08 | ACETONE | 183 |
| 76:C0010 | 43552 | .02 | 72.10 | METHYL ETHYL KETONE | 193 |
| 77:C0010 | 43560 | .01 | 100.16 | METHYL ISOBUTYL KETONE | 203 |
| 78:C0010 | 43817 | .02 | 165.83 | PERCHLOROETHYLENE | 213 |
| 79:C0010 | 45102 | .01 | 106.17 | ISOMERS OF XYLENE | 223 |
| 80:C0010 | 45202 | .01 | 92.15 | TOLUENE | 233 |
| 81:C0015 | | | 00.48 | C0015 | 2 |
| 82:C0015 | 43201 | 1.26 | 16.04 | METHANE | 13 |
| 83:C0015 | 43202 | .47 | 30.07 | ETHANE | 23 |
| 84:C0015 | 43203 | 6.10 | 28.05 | ETHYLENE | 33 |
| 85:C0015 | 43205 | 3.75 | 42.08 | PROPYLENE | 43 |
| 86:C0015 | 43206 | .28 | 26.04 | ACETYLENE | 53 |
| 87:C0015 | 43213 | 1.16 | 56.10 | BUTENE | 63 |
| 88:C0015 | 43231 | 7.61 | 86.18 | N-HEXANE | 73 |
| 89:C0015 | 43232 | .22 | 100.21 | N-HEPTANE | 83 |
| 90:C0015 | 43233 | .04 | 114.23 | N-OCTANE | 93 |
| 91:C0015 | 43105 | .01 | 86.18 | ISOMERS OF HEXANE | 103 |
| 92:C0015 | 43106 | .63 | 100.21 | ISOMERS OF HEPTANE | 113 |
| 93:C0015 | 43107 | .06 | 114.23 | ISOMERS OF OCTANE | 123 |
| 94:C0015 | 43248 | 3.89 | 84.16 | CYCLOHEXANE | 133 |
| 95:C0015 | 43115 | 5.66 | 98.19 | C-7 CYCLOPARAFFINS | 143 |
| 96:C0015 | 43116 | .76 | 112.23 | C-8 CYCLOPARAFFINS | 153 |
| 97:C0015 | 43118 | 1.47 | 114.00 | MINERAL SPIRITS | 163 |
| 98:C0015 | 43120 | 2.52 | 56.10 | ISOMERS OF BUTENE | 173 |
| 99:C0015 | 43301 | 1.59 | 32.04 | METHYL ALCOHOL | 183 |
| 100:C0015 | 43302 | .44 | 46.07 | ETHYL ALCOHOL | 193 |
| 101:C0015 | 43304 | .92 | 60.09 | ISOPROPYL ALCOHOL | 203 |
| 102:C0015 | 43305 | .37 | 74.12 | N-BUTYL ALCOHOL | 213 |
| 103:C0015 | 43367 | .42 | 62.07 | GLYCOL ETHER | 223 |
| 104:C0015 | 43368 | .34 | 62.07 | GLYCOL | 233 |
| 105:C0015 | 43433 | .52 | 88.10 | ETHYL ACETATE | 243 |
| 106:C0015 | 43435 | .18 | 116.16 | N-BUTYL ACETATE | 253 |
| 107:C0015 | 43438 | .23 | 100.11 | ETHYL ACRYLATE | 263 |
| 108:C0015 | 43444 | .02 | 104.00 | ISOPRORYL ACETATE | 273 |
| 109:C0015 | 43502 | .48 | 30.03 | FORMALDEHYDE | 283 |
| 110:C0015 | 43503 | .20 | 44.05 | ACETALEHYDE | 293 |
| 111:C0015 | 43510 | .23 | 72.12 | BUTYRALDEHYDE | 303 |
| 112:C0015 | 43551 | 21.45 | 58.08 | ACETONE | 313 |
| 113:C0015 | 43552 | 1.03 | 72.10 | METHYL ETHYL KETONE | 323 |
| 114:C0015 | 43560 | .41 | 100.16 | METHYL ISOBUTYL KETONE | 333 |
| 115:C0015 | 43601 | 1.30 | 44.05 | ETHYLENE OXIDE | 343 |
| 116:C0015 | 43602 | .40 | 58.08 | PROPYLENE OXIDE | 353 |
| 117:C0015 | 43704 | .85 | 55.06 | ACRYLONITRILE | 363 |
| 118:C0015 | 43801 | .25 | 50.49 | METHYL CHLORIDE | 373 |
| 119:C0015 | 43812 | 2.04 | 64.52 | ETHYL CHLORIDE | 383 |

# TABLE E-4 (continued)

```
120:C0015  43815      7.00    99.00  ETHYLENE DICHLORIDE             393
121:C0015  43817      3.65   165.83  PERCHLOROETHYLENE               403
122:C0015  43819       .01   173.85  METHYLENE BROMIDE               413
123:C0015  43860       .58    62.50  VINYL CHLORIDE                  423
124:C0015  45101     10.99   114.00  NAPTHA                          433
125:C0015  45102       .82   106.17  ISOMERS OF XYLENE               443
126:C0015  45201      3.21    78.12  BENZENE                         453
127:C0015  45202      2.33    92.15  TOLUENE                         463
128:C0015  45220       .96   104.16  STYRENE                         473
129:C0015  45106       .01   134.22  ISOMERS OF DIETHYLBENZENE       483
130:C0015  45300       .57    94.11  PHENOLS                         493
131:C0015  45401       .37   230.00  XYLENE BASE ACIDS               503
132:C0017                            C0017                             2
133:C0017  43000    100.00    86.00  UNIDENTIFIED HYDROCARBONS        13
134:C0020     97.00  3.00  00.00     C0020                             2
135:C0020  43202      1.86    30.07  ETHANE                           13
136:C0020  43206      0.23    26.04  ACETYLENE                        23
137:C0020  43235     24.98   128.26  N-NONANE                         33
138:C0020  43290     19.87   113.24  C8 OLEFIN UNK                    43
139:C0020  43513     11.35    29.00  ALDEHYDE                         53
140:C0020  45102     15.04   106.17  ISOMERS OF XYLENE                63
141:C0020  45201      0.69    78.12  BENZENE                          73
142:C0020  45215      4.75   134.22  TERT-BUTYLBENZENE                83
143:C0020  45104     15.97   120.19  ISOMERS OF ETHYLTOLUENE          93
144:C0020  45233      5.25   219.50  TRI/TETRAALKYL BENZENE          103
145:C0024                  00.00     C0024                             2
146:C0024  43204      1.80    44.09  PROPANE                          13
147:C0024  43212      4.40    58.12  N-BUTANE                         23
148:C0024  43214      1.40    58.12  ISOBUTANE                        33
149:C0024  43220      3.20    72.15  N-PENTANE                        43
150:C0024  43231      3.70    86.18  N-HEXANE                         53
151:C0024  43105      8.10    86.18  ISOMERS OF HEXANE                63
152:C0024  43115     15.40    98.19  C-7 CYCLOPARAFFINS               73
153:C0024  43116      1.60   112.23  C-8 CYCLOPARAFFINS               83
154:C0024  43118     15.00   114.00  MINERAL SPIRITS                  93
155:C0024  43122      3.10    72.15  ISOMERS OF PENTANE              103
156:C0024  43819     10.00   173.85  METHYLENE BROMIDE               113
157:C0024  45102     15.00   106.17  ISOMERS OF XYLENE               123
158:C0024  45201     12.30    78.12  BENZENE                         133
159:C0024  45202      5.00    92.15  TOLUENE                         143
160:C0025                            C0025                             2
161:C0025  43000    100.00    86.00  UNIDENTIFIED HYDROCARBONS        13
162:C0026                  00.60     C0026                             2
163:C0026  43214      5.30    58.12  ISOBUTANE                        13
164:C0026  43302     36.90    46.07  ETHYL ALCOHOL                    23
165:C0026  43304     38.50    60.09  ISOPROPYL ALCOHOL                33
166:C0026  43367      8.30    62.07  GLYCOL ETHER                     43
167:C0026  43369      3.20    76.00  PROPYLENE GLYCOL                 53
168:C0026  43435      1.30   116.16  N-BUTYL ACETATE                  63
169:C0026  43502       .60    30.03  FORMALDEHYDE                     73
170:C0026  43551      1.40    58.08  ACETONE                          83
171:C0026  45101      4.50   114.00  NAPHTHA                          93
172:C0031     95.00  5.00  00.42     C0031                             2
173:C0031  43201     63.19    16.04  METHANE                          13
174:C0031  43202      1.84    30.07  ETHANE                           23
175:C0031  43203      1.55    28.05  ETHYLENE                         33
176:C0031  43204      2.56    44.09  PROPANE                          43
177:C0031  43205      1.41    42.08  PROPYLENE                        53
178:C0031  43206       .05    26.04  ACETYLENE                        63
179:C0031  43212      4.57    58.12  N-BUTANE                         73
```

# TABLE E-4 (continued)

```
180:C0031  43213       2.10     56.10  BUTENE                               83
181:C0031  43214       4.31     58.12  ISOBUTANE                            93
182:C0031  43220       2.75     72.15  N-PENTANE                           103
183:C0031  43231       3.25     86.18  N-HEXANE                            113
184:C0031  43232        .53    100.21  N-HEPTANE                           123
185:C0031  43105       3.39     86.18  ISOMERS OF HEXANE                   133
186:C0031  43106        .43    100.21  ISOMERS OF HEPTANE                  143
187:C0031  43107        .06    114.23  ISOMERS OF OCTANE                   153
188:C0031  43248        .03     84.16  CYCLOHEXANE                         163
189:C0031  43115       1.32     98.19  C-7 CYCLOPARAFFINS                  173
190:C0031  43122       2.29     72.15  ISOMERS OF PENTANE                  183
191:C0031  43502        .42     30.03  FORMALDEHYDE                        193
192:C0031  43552        .02     72.10  METHYL ETHYL KETONE                 203
193:C0031  45101        .30    114.00  NAPTHA                              213
194:C0031  45201       3.61     78.12  BENZENE                             223
195:C0031  45202        .05     92.15  TOLUENE                             233
196:C0032                   00.11     C0032                                  2
197:C0032  43201      92.36     16.04  METHANE                              13
198:C0032  43203       1.37     28.05  ETHYLENE                             23
199:C0032  43204        .19     44.09  PROPANE                              33
200:C0032  43205        .42     42.08  PROPYLENE                            43
201:C0032  43206        .13     26.04  ACETYLENE                            53
202:C0032  43212        .26     58.12  N-BUTANE                             63
203:C0032  43213        .42     56.10  BUTENE                               73
204:C0032  43214        .13     58.12  ISOBUTANE                            83
205:C0032  43220        .22     72.15  N-PENTANE                            93
206:C0032  43224        .42     70.14  1-PENTENE                           103
207:C0032  43231        .98     86.18  N-HEXANE                            113
208:C0032  43232        .98    100.21  N-HEPTANE                           123
209:C0032  43233        .97    114.23  N-OCTANE                            133
210:C0032  43105        .01     86.18  ISOMERS OF HEXANE                   143
211:C0032  43248        .01     84.16  CYCLOHEXANE                         153
212:C0032  43121        .83     70.14  ISOMERS OF PENTENE                  163
213:C0032  43122        .12     72.15  ISOMERS OF PENTANE                  173
214:C0032  43502        .11     30.03  FORMALDEHYDE                        183
215:C0032  45201        .06     78.12  BENZENE                             193
216:C0032  45202        .03     92.15  TOLUENE                             203
217:C0034     90.00  10.00  05.26     C0034                                  2
218:C0034  43201       1.96     16.04  METHANE                              13
219:C0034  43203       6.15     28.05  ETHYLENE                             23
220:C0034  43205       1.71     42.08  PROPYLENE                            33
221:C0034  43206       0.65     26.04  ACETYLENE                            43
222:C0034  43215       0.89     56.12  ISOBUTYLENE                          53
223:C0034  43224       3.79     70.14  1-PENTENE                            63
224:C0034  43232       0.23    100.21  N-HEPTANE                            73
225:C0034  43235       1.33    128.26  N-NONANE                             83
226:C0034  43238       1.93    142.29  N-DECANE                             93
227:C0034  43241       4.06    156.32  N-UNDECANE                          103
228:C0034  43255       7.32    170.34  N-DODECANE                          113
229:C0034  43258       6.04    184.36  N-TRIDECANE                         123
230:C0034  43259       6.50    198.40  N-TETRADECANE                       133
231:C0034  43260       6.00    212.42  N-PENTADECANE                       143
232:C0034  43281       5.37    226.45  N-HEXADECANE                        153
233:C0034  43282       3.80    240.48  N-HEPTADECANE                       163
234:C0034  43283       3.16    254.51  N-OCTADECANE                        173
235:C0034  43284       2.43    268.53  N-NONADECANE                        183
236:C0034  43285       2.55    282.56  N-EICOSANE                          193
237:C0034  43286       1.34    296.59  N-HENEICOSANE                       203
238:C0034  43287       0.70    310.61  N-DOCOSANE                          213
239:C0034  43502       5.16     30.03  FORMALDEHYDE                        223
```

## TABLE E-4 (continued)

```
240:C0034  43503       14.80    44.05  ACETALDEHYDE                        233
241:C0034  45202        0.21    92.15  TOLUENE                             243
242:C0034  45207        0.27   120.19  1,3,5-TRIMETHYLBENZENE              253
243:C0034  45221       11.65   118.15  A-METHYLSTYRENE                     263
244:C0035                             C0035                                  2
245:C0035  43000      100.00    86.00  UNIDENTIFIED HYDROCARBONS            13
246:C0038      90.00  10.00           C0038                                  2
247:C0038  43201        4.22    16.04  METHANE                              13
248:C0038  43202        3.16    30.07  ETHANE                               23
249:C0038  43203        4.75    28.05  ETHYLENE                             33
250:C0038  43205       17.61    42.08  PROPYLENE                            43
251:C0038  43206        5.77    26.04  ACETYLENE                            53
252:C0038  43231        7.49    86.18  N-HEXANE                             63
253:C0038  43232       31.99   100.21  N-HEPTANE                            73
254:C0038  45201        2.66    78.12  BENZENE                              83
255:C0038  45202       10.21    92.15  TOLUENE                              93
256:C0038  45205        3.92   106.17  1,3 DIMETHYLBENZENE                 103
257:C0038  45207        3.48   120.19  1,3,5-TRIMETHYLBENZENE              113
258:C0038  45212        4.44   120.19  M-ETHYLTOLUENE                      123
259:C0038  45232        0.28   132.00  TETRAMETHYLBENZENE                  133
260:C0040                             C0040                                  2
261:C0040  43204        1.69    44.09  PROPANE                              13
262:C0040  43212       18.76    58.12  N-BUTANE                             23
263:C0040  43213        1.72    56.10  BUTENE                               33
264:C0040  43214        6.25    58.12  ISOBUTANE                            43
265:C0040  43220       10.22    72.15  N-PENTANE                            53
266:C0040  43224        5.98    70.14  1-PENTENE                            63
267:C0040  43231        2.58    86.18  N-HEXANE                             73
268:C0040  43232        0.71   100.21  N-HEPTANE                            83
269:C0040  43233        0.17   114.23  N-OCTANE                             93
270:C0040  43235        0.04   128.26  N-NONANE                            103
271:C0040  43105        8.90    86.18  ISOMERS OF HEXANE                   113
272:C0040  43106        2.22   100.21  ISOMERS OF HEPTANE                  123
273:C0040  43238        0.15   142.29  N-DECANE                            133
274:C0040  43107        2.31   114.23  ISOMERS OF OCTANE                   143
275:C0040  43248        2.19    84.16  CYCLOHEXANE                         153
276:C0040  43108        0.26   128.26  ISOMERS OF NONANE                   163
277:C0040  43115        0.25    98.19  C-7 CYCLOPARAFFINS                  173
278:C0040  43122       27.76    72.15  ISOMERS OF PENTANE                  183
279:C0040  45102        2.30   106.17  ISOMERS OF XYLENE                   193
280:C0040  45201        1.18    78.12  BENZENE                             203
281:C0040  45202        2.55    92.15  TOLUENE                             213
282:C0040  45103        0.25   134.22  DIMETHYL ETHEL BENZENE              223
283:C0040  45104        0.86   120.19  ISOMERS OF ETHYLTOLUENE             233
284:C0040  45105        0.10   134.22  ISOMERS OF BUTYLBENZENE             243
285:C0040  45107        0.59   120.19  ISOMERS OF TRIMETHYLBENZENE         253
286:C0040  45108        0.02   120.19  ISOMERS OF PROPYLBENZENE            263
287:C0043                             C0043                                  2
288:C0043  43107        0.58   114.23  ISOMERS OF OCTANE                    13
289:C0043  43108       19.82   128.26  ISOMERS OF NONANE                    23
290:C0043  43109       50.32   142.29  ISOMERS OF DECANE                    33
291:C0043  43110        1.89   156.32  ISOMERS OF UNDECANE                  43
292:C0043  43817       27.40   165.83  PERCHLOROETHYLENE                    53
293:C0044                              C0044                                 2
294:C0044  43201       66.50    16.04  METHANE                              13
295:C0044  43202        5.00    30.07  ETHANE                               23
296:C0044  43203        2.00    28.05  ETHYLENE                             33
297:C0044  43204        3.10    44.09  PROPANE                              43
298:C0044  43212       23.40    58.12  N-BUTANE                             53
299:C0045                              C0045                                 2
```

## TABLE E-4 (continued)

```
300:C0045  43204       1.69     44.09  PROPANE                                 13
301:C0045  43212      18.76     58.12  N-BUTANE                                23
302:C0045  43213       1.72     56.10  BUTENE                                  33
303:C0045  43214       6.25     58.12  ISOBUTANE                               43
304:C0045  43220      10.22     72.15  N-PENTANE                               53
305:C0045  43224       5.98     70.14  1-PENTENE                               63
306:C0045  43231       2.58     86.18  N-HEXANE                                73
307:C0045  43232       0.71    100.21  N-HEPTANE                               83
308:C0045  43233       0.17    114.23  N-OCTANE                                93
309:C0045  43235       0.04    128.26  N-NONANE                               103
310:C0045  43105       8.90     86.18  ISOMERS OF HEXANE                      113
311:C0045  43106       2.22    100.21  ISOMERS OF HEPTANE                     123
312:C0045  43238       0.15    142.29  N-DECANE                               133
313:C0045  43107       2.31    114.23  ISOMERS OF OCTANE                      143
314:C0045  43248       2.19     84.16  CYCLOHEXANE                            153
315:C0045  43108       0.26    128.26  ISOMERS OF NONANE                      163
316:C0045  43115       0.25     98.19  C-7 CYCLOPARAFFINS                     173
317:C0045  43122      27.76     72.15  ISOMERS OF PENTANE                     183
318:C0045  45102       2.30    106.17  ISOMERS OF XYLENE                      193
319:C0045  45201       1.18     78.12  BENZENE                                203
320:C0045  45202       2.55     92.15  TOLUENE                                213
321:C0045  45103       0.25    134.22  DIMETHYL ETHYL BENZENE                 223
322:C0045  45104       0.86    120.19  ISOMERS OF ETHYLTOLUENE                233
323:C0045  45105       0.10    134.22  ISOMERS OF BUTYLBENZENE                243
324:C0045  45107       0.59    120.19  ISOMERS OF TRIMETHYLBENZENE            253
325:C0045  45108       0.02    120.19  ISOMERS OF PROPYLBENZENE               263
326:C0047                              C0047                                    2
327:C0047  43107       0.80    114.23  ISOMERS OF OCTANE                       13
328:C0047  43108      27.30    128.26  ISOMERS OF NONANE                       23
329:C0047  43109      69.30    142.29  ISOMERS OF DECANE                       33
330:C0047  43110       2.60    156.32  ISOMERS OF UNDECANE                     43
331:C0049     95.00  5.00             C0049                                     2
332:C0049  43000     100.00     86.00  UNIDENTIFIED HYDROCARBONS               13
333:C0051     85.00 15.00  0.01       C0051                                     2
334:C0051  43201      79.54     16.04  METHANE                                 13
335:C0051  43202       0.84     30.07  ETHANE                                  23
336:C0051  43203       1.80     28.05  ETHYLENE                                33
337:C0051  43204       0.74     44.09  PROPANE                                 43
338:C0051  43205       2.61     42.08  PROPYLENE                               53
339:C0051  43206       3.53     26.04  ACETYLENE                               63
340:C0051  43212       1.78     58.12  N-BUTANE                                73
341:C0051  43213       0.04     56.10  BUTENE                                  83
342:C0051  43214       0.33     58.12  ISOBUTANE                               93
343:C0051  43220       0.02     72.15  N-PENTANE                              103
344:C0051  43224       0.04     70.14  1-PENTENE                              113
345:C0051  43231       0.09     86.18  N-HEXANE                               123
346:C0051  43232       0.09    100.21  N-HEPTANE                              133
347:C0051  43233       0.09    114.23  N-OCTANE                               143
348:C0051  43121       0.08     70.14  ISOMERS OF PENTENE                     153
349:C0051  43122       0.01     72.15  ISOMERS OF PENTANE                     163
350:C0051  43502       0.01     30.03  FORMALDEHYDE                           173
351:C0051  43551       6.87     58.08  ACETONE                                183
352:C0051  45201       1.49     78.12  BENZENE                                193
353:C0081     94.00   6.00 01.81      C0081                                     2
354:C0081  43201      75.40     16.04  METHANE                                 13
355:C0081  43202       9.91     30.07  ETHANE                                  23
356:C0081  43203        .99     28.05  ETHYLENE                                33
357:C0081  43204       9.91     44.09  PROPANE                                 43
358:C0081  43212        .99     58.12  N-BUTANE                                53
359:C0081  43214        .99     58.12  ISOBUTANE                               63
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 360:C0081 | 43502 | 1.81 | 30.03 | FORMALDEHYDE | 73 |
| 361:C0085 | 85.00 | 15.00 | 00.06 | C0085 | 2 |
| 362:C0085 | 43201 | 53.97 | 16.04 | METHANE | 13 |
| 363:C0085 | 43202 | 5.25 | 30.07 | ETHANE | 23 |
| 364:C0085 | 43203 | 18.00 | 28.05 | ETHYLENE | 33 |
| 365:C0085 | 43204 | .58 | 44.09 | PROPANE | 34 |
| 366:C0085 | 43205 | 1.79 | 42.08 | PROPYLENE | 43 |
| 367:C0085 | 43206 | 1.46 | 26.04 | ACETYLENE | 53 |
| 368:C0085 | 43212 | .07 | 58.12 | N-BUTANE | 63 |
| 369:C0085 | 43213 | .63 | 56.10 | BUTENE | 73 |
| 370:C0085 | 43218 | .30 | 54.09 | 1,3-BUTADIENE | 83 |
| 371:C0085 | 43220 | .04 | 72.15 | N-PENTANE | 93 |
| 372:C0085 | 43231 | .26 | 86.18 | N-HEXANE | 103 |
| 373:C0085 | 43232 | 1.33 | 100.21 | N-HEPTANE | 113 |
| 374:C0085 | 43233 | .03 | 114.23 | N-OCTANE | 123 |
| 375:C0085 | 43235 | .01 | 128.26 | N-NONANE | 133 |
| 376:C0085 | 43105 | .01 | 86.18 | ISOMERS OF HEXANE | 143 |
| 377:C0085 | 43248 | .01 | 84.16 | CYCLOHEXANE | 153 |
| 378:C0085 | 43108 | .01 | 128.26 | ISOMERS OF NONANE | 163 |
| 379:C0085 | 43116 | .02 | 112.23 | C-8 CYCLOPARAFFINS | 173 |
| 380:C0085 | 43122 | .07 | 72.15 | ISOMERS OF PENTANE | 183 |
| 381:C0085 | 43502 | .06 | 30.03 | FORMALDEHYDE | 193 |
| 382:C0085 | 43822 | 2.60 | 93.19 | TRIMETHYLFLUOROSILANE | 203 |
| 383:C0085 | 45201 | 12.96 | 78.12 | BENZENE | 213 |
| 384:C0085 | 45202 | .57 | 92.15 | TOLUENE | 223 |
| 385:C0086 | | | 17.96 | C0086 | 2 |
| 386:C0086 | 43201 | 36.70 | 16.04 | METHANE | 13 |
| 387:C0086 | 43204 | 2.13 | 44.09 | PROPANE | 23 |
| 388:C0086 | 43212 | 7.61 | 58.12 | N-BUTANE | 33 |
| 389:C0086 | 43214 | 1.21 | 58.12 | ISOBUTANE | 43 |
| 390:C0086 | 43220 | 4.06 | 72.15 | N-PENTANE | 53 |
| 391:C0086 | 43231 | 4.97 | 86.18 | N-HEXANE | 63 |
| 392:C0086 | 43232 | 12.48 | 100.21 | N-HEPTANE | 73 |
| 393:C0086 | 43105 | 1.98 | 86.18 | ISOMERS OF HEXANE | 83 |
| 394:C0086 | 43106 | .77 | 100.21 | ISOMERS OF HEPTANE | 93 |
| 395:C0086 | 43107 | 1.39 | 114.23 | ISOMERS OF OCTANE | 103 |
| 396:C0086 | 43248 | .44 | 84.16 | CYCLOHEXANE | 113 |
| 397:C0086 | 43122 | 5.63 | 72.15 | ISOMERS OF PENTANE | 123 |
| 398:C0086 | 43502 | 17.96 | 30.03 | FORMALDEHYDE | 133 |
| 399:C0086 | 45201 | 1.78 | 78.12 | BENZENE | 143 |
| 400:C0086 | 45202 | .89 | 92.15 | TOLUENE | 153 |
| 401:C0090 | | | 11.29 | C0090 | 2 |
| 402:C0090 | 43105 | 1.03 | 86.18 | ISOMERS OF HEXANE | 13 |
| 403:C0090 | 43106 | .48 | 100.21 | ISOMERS OF HEPTANE | 23 |
| 404:C0090 | 43107 | .18 | 114.23 | ISOMERS OF OCTANE | 33 |
| 405:C0090 | 43108 | .13 | 128.26 | ISOMERS OF NONANE | 43 |
| 406:C0090 | 43109 | .09 | 142.29 | ISOMERS OF DECANE | 53 |
| 407:C0090 | 43115 | .23 | 98.19 | C-7 CYCLOPARAFFINS | 63 |
| 408:C0090 | 43116 | .06 | 112.23 | C-8 CYCLOPARAFFINS | 73 |
| 409:C0090 | 43117 | .03 | 126.26 | C-9 CYCLOPARAFFINS | 83 |
| 410:C0090 | 43122 | 1.40 | 72.15 | ISOMERS OF PENTANE | 93 |
| 411:C0090 | 43201 | 9.05 | 16.04 | METHANE | 103 |
| 412:C0090 | 43202 | 14.96 | 30.07 | ETHANE | 113 |
| 413:C0090 | 43203 | .13 | 28.05 | ETHYLENE | 123 |
| 414:C0090 | 43204 | 15.29 | 44.09 | PROPANE | 133 |
| 415:C0090 | 43205 | 11.90 | 42.08 | PROPYLENE | 143 |
| 416:C0090 | 43206 | .01 | 26.04 | ACETYLENE | 153 |
| 417:C0090 | 43212 | 21.11 | 58.12 | N-BUTANE | 163 |
| 418:C0090 | 43213 | .06 | 56.10 | BUTENE | 173 |
| 419:C0090 | 43214 | 4.73 | 58.12 | ISOBUTANE | 183 |

## TABLE E-4 (continued)

```
420:C0090  43220     1.23    72.15  N-PENTANE                        193
421:C0090  43231     1.73    86.18  N-HEXANE                         203
422:C0090  43232      .23   100.21  N-HEPTANE                        213
423:C0090  43233      .48   114.23  N-OCTANE                         223
424:C0090  43235      .08   128.26  N-NONANE                         233
425:C0090  43238      .06   142.29  N-DECANE                         243
426:C0090  43248      .02    84.16  CYCLOHEXANE                      253
427:C0090  43502    11.29    30.03  FORMALDEHYDE                     263
428:C0090  43551     3.61    58.08  ACETONE                          273
429:C0090  45102      .10   106.17  ISOMERS OF XYLENE                283
430:C0090  45201      .11    78.12  BENZENE                          293
431:C0090  45202      .18    92.15  TOLUENE                          303
432:C0091              00.05     C0091                                 2
433:C0091  43105      .83    86.18  ISOMERS OF HEXANE                 13
434:C0091  43106      .39   100.21  ISOMERS OF HEPTANE                23
435:C0091  43107     1.08   114.23  ISOMERS OF OCTANE                 33
436:C0091  43108     6.85   128.26  ISOMERS OF NONANE                 43
437:C0091  43109    17.31   142.29  ISOMERS OF DECANE                 53
438:C0091  43110      .64   156.32  ISOMERS OF UNDECANE               63
439:C0091  43115      .48    98.19  C-7 CYCLOPARAFFINS                73
440:C0091  43122     6.70    72.15  ISOMERS OF PENTANE                83
441:C0091  43201     1.74    16.04  METHANE                           93
442:C0091  43202      .54    30.07  ETHANE                           103
443:C0091  43203      .02    28.05  ETHYLENE                         113
444:C0091  43204     1.27    44.09  PROPANE                          123
445:C0091  43205      .01    42.08  PROPYLENE                        133
446:C0091  43212     5.01    58.12  N-BUTANE                         143
447:C0091  43213      .05    56.10  BUTENE                           153
448:C0091  43214     2.02    58.12  ISOBUTANE                        163
449:C0091  43220     3.52    72.15  N-PENTANE                        173
450:C0091  43224      .17    70.14  1-PENTENE                        183
451:C0091  43231     3.51    86.18  N-HEXANE                         193
452:C0091  43232      .41   100.21  N-HEPTANE                        203
453:C0091  43233      .18   114.23  N-OCTANE                         213
454:C0091  43248     1.61    84.16  CYCLOHEXANE                      223
455:C0091  43301     2.94    32.04  METHYL ALCOHOL                   233
456:C0091  43302     3.24    46.07  ETHYL ALCOHOL                    243
457:C0091  43304     3.38    60.09  ISOPROPYL ALCOHOL                253
458:C0091  43306      .30    74.12  ISOBUTYL ALCOHOL                 263
459:C0091  43432      .04    74.08  METHYL ACETATE                   273
460:C0091  43433      .49    88.10  ETHYL ACETATE                    283
461:C0091  43502      .05    30.03  FORMALDEHYDE                     293
462:C0091  43551     7.14    58.08  ACETONE                          303
463:C0091  43552     6.68    72.10  METHYL ETHYL KETONE              313
464:C0091  43560     3.40   100.16  METHYL ISOBUTYL KETONE           323
465:C0091  43815      .05    99.00  ETHYLENE DICHLORIDE              333
466:C0091  43817     5.83   165.83  PERCHLOROETHYLENE                343
467:C0091  45104      .01   120.19  ISOMERS OF ETHYLTOLUENE          353
468:C0091  45201     1.67    78.12  BENZENE                          363
469:C0091  45202     6.05    92.15  TOLUENE                          373
470:C0091  45221     4.39   118.15  A-METHYLSTYRENE                  383
471:C0091  45107      .01   120.19  ISOMERS OF TRIMETHYLBENZENE      393
472:C0094                           C0094                              2
473:C0094  43105     8.90    86.18  ISOMERS OF HEXANE                 13
474:C0094  43106     2.00   100.21  ISOMERS OF HEPTANE                23
475:C0094  43107     1.90   114.23  ISOMERS OF OCTANE                 33
476:C0094  43108      .20   128.26  ISOMERS OF NONANE                 43
477:C0094  43115      .20    98.19  C-7 CYCLOPARAFFINS                53
478:C0094  43122    29.00    72.15  ISOMERS OF PENTANE                63
479:C0094  43204     1.80    44.09  PROPANE                           73
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 480:C0094 | 43212 | 19.80 | 58.12 | N-BUTANE | 83 |
| 481:C0094 | 43213 | 1.80 | 56.10 | BUTENE | 93 |
| 482:C0094 | 43214 | 6.60 | 58.12 | ISOBUTANE | 103 |
| 483:C0094 | 43220 | 10.60 | 72.15 | N-PENTANE | 113 |
| 484:C0094 | 43224 | 6.20 | 70.14 | 1-PENTENE | 123 |
| 485:C0094 | 43231 | 2.50 | 86.18 | N-HEXANE | 133 |
| 486:C0094 | 43232 | .60 | 100.21 | N-HEPTANE | 143 |
| 487:C0094 | 43233 | .10 | 114.23 | N-OCTANE | 153 |
| 488:C0094 | 43248 | 2.10 | 84.16 | CYCLOHEXANE | 163 |
| 489:C0094 | 45102 | 1.60 | 106.17 | ISOMERS OF XYLENE | 173 |
| 490:C0094 | 45103 | .40 | 134.22 | DIMETHYLETHYLBENZENE | 183 |
| 491:C0094 | 45104 | .50 | 120.19 | ISOMERS OF ETHYLTOLUENE | 193 |
| 492:C0094 | 45201 | 1.10 | 78.12 | BENZENE | 203 |
| 493:C0094 | 45202 | 2.10 | 92.15 | TOLUENE | 213 |
| 494:C0101 | | | | C0101 | 2 |
| 495:C0101 | 43204 | 1.80 | 44.09 | PROPANE | 13 |
| 496:C0101 | 43212 | 19.80 | 58.12 | N-BUTANE | 23 |
| 497:C0101 | 43213 | 1.80 | 56.10 | BUTENE | 33 |
| 498:C0101 | 43214 | 6.60 | 58.12 | ISOBUTANE | 43 |
| 499:C0101 | 43220 | 10.60 | 72.15 | N-PENTANE | 53 |
| 500:C0101 | 43224 | 6.20 | 70.14 | 1-PENTENE | 63 |
| 501:C0101 | 43231 | 2.50 | 86.18 | N-HEXANE | 73 |
| 502:C0101 | 43232 | 0.60 | 100.21 | N-HEPTANE | 83 |
| 503:C0101 | 43233 | 0.10 | 114.23 | N-OCTANE | 93 |
| 504:C0101 | 43105 | 8.90 | 86.18 | ISOMERS OF HEXANE | 103 |
| 505:C0101 | 43106 | 2.00 | 100.21 | ISOMERS OF HEPTANE | 113 |
| 506:C0101 | 43107 | 1.90 | 114.23 | ISOMERS OF OCTANE | 123 |
| 507:C0101 | 43248 | 2.10 | 84.16 | CYCLOHEXANE | 133 |
| 508:C0101 | 43108 | 0.20 | 128.26 | ISOMERS OF NONANE | 143 |
| 509:C0101 | 43115 | 0.20 | 98.19 | C-7 CYCLOPARAFFINS | 153 |
| 510:C0101 | 43122 | 29.00 | 72.15 | ISOMERS OF PENTANE | 163 |
| 511:C0101 | 45102 | 1.60 | 106.17 | ISOMERS OF XYLENE | 173 |
| 512:C0101 | 45201 | 1.10 | 78.12 | BENZENE | 183 |
| 513:C0101 | 45202 | 2.10 | 92.15 | TOLUENE | 193 |
| 514:C0101 | 45103 | 0.10 | 134.22 | DIMETHYL ETHEL BENZENE | 203 |
| 515:C0101 | 45104 | 0.50 | 120.19 | ISOMERS OF ETHYLTOLUENE | 213 |
| 516:C0101 | 45107 | 0.30 | 120.19 | ISOMERS OF TRIMETHYLBENZENE | 223 |
| 517:C0103 | | | | C0103 | 2 |
| 518:C0103 | 43201 | 2.54 | 16.04 | METHANE | 13 |
| 519:C0103 | 43202 | 0.63 | 30.07 | ETHANE | 23 |
| 520:C0103 | 43204 | 3.04 | 44.09 | PROPANE | 33 |
| 521:C0103 | 43212 | 8.52 | 58.12 | N-BUTANE | 43 |
| 522:C0103 | 43214 | 4.09 | 58.12 | ISOBUTANE | 53 |
| 523:C0103 | 43220 | 6.47 | 72.15 | N-PENTANE | 63 |
| 524:C0103 | 43231 | 3.74 | 86.18 | N-HEXANE | 73 |
| 525:C0103 | 43232 | 0.95 | 100.21 | N-HEPTANE | 83 |
| 526:C0103 | 43233 | 0.64 | 114.23 | N-OCTANE | 93 |
| 527:C0103 | 43105 | 1.90 | 86.18 | ISOMERS OF HEXANE | 103 |
| 528:C0103 | 43106 | 1.27 | 100.21 | ISOMERS OF HEPTANE | 113 |
| 529:C0103 | 43107 | 2.13 | 114.23 | ISOMERS OF OCTANE | 123 |
| 530:C0103 | 43248 | 0.63 | 84.16 | CYCLOHEXANE | 133 |
| 531:C0103 | 43108 | 6.62 | 128.26 | ISOMERS OF NONANE | 143 |
| 532:C0103 | 43109 | 16.06 | 142.29 | ISOMERS OF DECANE | 153 |
| 533:C0103 | 43110 | 0.58 | 156.32 | ISOMERS OF UNDECANE | 163 |
| 534:C0103 | 43122 | 5.59 | 72.15 | ISOMERS OF PENTANE | 173 |
| 535:C0103 | 43301 | 3.24 | 32.04 | METHYL ALCOHOL | 183 |
| 536:C0103 | 43302 | 3.24 | 46.07 | ETHYL ALCOHOL | 193 |
| 537:C0103 | 43304 | 3.29 | 60.09 | ISOPROPYL ALCOHOL | 203 |
| 538:C0103 | 43551 | 5.78 | 58.08 | ACETONE | 213 |
| 539:C0103 | 43552 | 5.78 | 72.10 | METHYL ETHYL KETONE | 223 |

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 540:C0103 | 43560 | 2.98 | 100.16 | METHYL ISOBUTYL KETONE | 233 |
| 541:C0103 | 43817 | 5.78 | 165.83 | PERCHLOROETHYLENE | 243 |
| 542:C0103 | 45102 | 2.31 | 106.17 | ISOMERS OF XYLENE | 253 |
| 543:C0103 | 45202 | 2.31 | 92.15 | TOLUENE | 263 |
| 544:C0110 | | | | C0110 | 2 |
| 545:C0110 | 43231 | 20.70 | 86.18 | N-HEXANE | 13 |
| 546:C0110 | 43248 | 20.70 | 84.16 | CYCLOHEXANE | 23 |
| 547:C0110 | 43301 | 3.90 | 32.04 | METHYL ALCOHOL | 33 |
| 548:C0110 | 43302 | .60 | 46.07 | ETHYL ALCOHOL | 43 |
| 549:C0110 | 43304 | 16.40 | 60.09 | ISOPROPYL ALCOHOL | 53 |
| 550:C0110 | 43305 | 1.60 | 74.12 | N-BUTYL ALCOHOL | 63 |
| 551:C0110 | 43306 | .60 | 74.12 | ISOBUTYL ALCOHOL | 73 |
| 552:C0110 | 43369 | .80 | 76.00 | PROPYLENE GLYCOL | 83 |
| 553:C0110 | 43370 | .60 | 62.07 | ETHYLENE GLYCOL | 93 |
| 554:C0110 | 43435 | 2.50 | 116.16 | N-BUTYL ACETATE | 103 |
| 555:C0110 | 43443 | 1.30 | 90.00 | CELLOSOLVE ACETATE | 113 |
| 556:C0110 | 43446 | 1.50 | 116.16 | ISOBUTYL ACETATE | 123 |
| 557:C0110 | 43450 | .50 | 73.09 | DIMETHYLFORMAMIDE | 133 |
| 558:C0110 | 43451 | 6.10 | 144.21 | ISOBUTYL ISOBUTYRATE | 143 |
| 559:C0110 | 43551 | 3.20 | 58.08 | ACETONE | 153 |
| 560:C0110 | 43552 | 5.60 | 72.10 | METHYL ETHYL KETONE | 163 |
| 561:C0110 | 43559 | .70 | 100.16 | METHYL N-BUTYL KETONE | 173 |
| 562:C0110 | 43560 | .60 | 100.16 | METHYL ISOBUTYL KETONE | 183 |
| 563:C0110 | 45102 | 2.60 | 106.17 | ISOMERS OF XYLENE | 193 |
| 564:C0110 | 45202 | 5.20 | 92.15 | TOLUENE | 203 |
| 565:C0110 | 45203 | 4.30 | 106.17 | ETHYLBENZENE | 213 |
| 566:C0111 | | | | C0111 | 2 |
| 567:C0111 | 43231 | 20.70 | 86.18 | N-HEXANE | 13 |
| 568:C0111 | 43248 | 20.70 | 84.16 | CYCLOHEXANE | 23 |
| 569:C0111 | 43301 | 3.90 | 32.04 | METHYL ALCOHOL | 33 |
| 570:C0111 | 43302 | .60 | 46.07 | ETHYL ALCOHOL | 43 |
| 571:C0111 | 43304 | 16.40 | 60.09 | ISOPROPYL ALCOHOL | 53 |
| 572:C0111 | 43305 | 1.60 | 74.12 | N-BUTYL ALCOHOL | 63 |
| 573:C0111 | 43306 | .60 | 74.12 | ISOBUTYL ALCOHOL | 73 |
| 574:C0111 | 43369 | .80 | 76.00 | PROPYLENE GLYCOL | 83 |
| 575:C0111 | 43370 | .60 | 62.07 | ETHYLENE GLYCOL | 93 |
| 576:C0111 | 43435 | 2.50 | 116.16 | N-BUTYL ACETATE | 103 |
| 577:C0111 | 43443 | 1.30 | 90.00 | CELLOSOVE ACETATE | 113 |
| 578:C0111 | 43446 | 1.50 | 116.16 | ISOBUTYL ACETATE | 123 |
| 579:C0111 | 43450 | .50 | 73.09 | DIMETHYLFORMAMIDE | 133 |
| 580:C0111 | 43451 | 6.10 | 144.21 | ISOBUTYLISOBUTYRATE | 143 |
| 581:C0111 | 43551 | 3.20 | 58.08 | ACETONE | 153 |
| 582:C0111 | 43552 | 5.60 | 72.10 | METHYL ETHYL KETONE | 163 |
| 583:C0111 | 43559 | .70 | 100.16 | METHYL N-BUTYL KETONE | 173 |
| 584:C0111 | 43560 | .60 | 100.16 | METHYL ISOBUTYL KETONE | 183 |
| 585:C0111 | 45102 | 2.60 | 106.17 | ISOMERS OF XYLENE | 193 |
| 586:C0111 | 45202 | 5.20 | 92.15 | TOLUENE | 203 |
| 587:C0111 | 45203 | 4.30 | 106.17 | ETHYLBENZENE | 213 |
| 588:C0113 | | | 09.17 | C0113 | 2 |
| 589:C0113 | 43201 | 38.66 | 16.04 | METHANE | 13 |
| 590:C0113 | 43202 | 8.20 | 30.07 | ETHANE | 23 |
| 591:C0113 | 43203 | 1.24 | 28.05 | ETHYLENE | 33 |
| 592:C0113 | 43204 | 2.87 | 44.09 | PROPANE | 43 |
| 593:C0113 | 43205 | 14.27 | 42.08 | PROPYLENE | 53 |
| 594:C0113 | 43212 | 8.45 | 58.12 | N-BUTANE | 63 |
| 595:C0113 | 43213 | 5.77 | 56.10 | BUTENE | 73 |
| 596:C0113 | 43214 | 1.37 | 58.12 | ISOBUTANE | 83 |
| 597:C0113 | 43224 | 5.01 | 70.14 | 1-PENTENE | 93 |
| 598:C0113 | 43304 | .11 | 60.09 | ISOPROPYL ALCOHOL | 103 |
| 599:C0113 | 43502 | 9.17 | 30.03 | FORMALDEHYDE | 113 |

## TABLE E-4 (continued)

```
600:C0113  43802       4.89     84.94  DICHLOROMETHANE                    123
601:C0116      85.00  15.00            C0116                                2
602:C0116  43201      70.00     16.04  METHANE                             13
603:C0116  43202      20.00     30.07  ETHANE                              23
604:C0116  43302       2.00     46.07  ETHYL ALCOHOL                       33
605:C0116  43304       2.00     60.09  ISOPROPYL ALCOHOL                   43
606:C0116  43434       2.00    102.13  PROPYL ACETATE                      53
607:C0116  43551       2.00     58.08  ACETONE                             63
608:C0116  43721       1.00     45.09  ETHYLAMINE                          73
609:C0116  43740       1.00     59.11  TRIMETHYLAMINE                      83
610:C0117                  00.00       C0117                                2
611:C0117  43201      98.60     16.04   METHANE                            13
612:C0117  43202       0.10     30.07   ETHANE                             23
613:C0117  43204       0.10     44.09   PROPANE                            33
614:C0117  43242       0.20     70.14   CYCLOPENTANE                       43
615:C0117  43212       0.20     58.12   N-BUTANE                           53
616:C0117  43214       0.10     58.12   ISO-BUTANE                         63
617:C0117  43220       0.10     72.15   N-PENTANE                          73
618:C0117  43123       0.10    136.23   TERPENES                           83
619:C0117  43817       0.30    165.83   PERCHLOROETHYLENE                  93
620:C0117  45102       0.10    106.17   ISOMERS OF XYLENE                 103
621:C0117  45202       0.10     92.15   TOLUENE                           113
622:C0120      97.00   3.00  00.12     C0120                                2
623:C0120  43201      11.00     16.04  METHANE                             13
624:C0120  43212      14.00     58.12  N-BUTANE                            23
625:C0120  43231       5.00     86.18  N-HEXANE                            33
626:C0120  43502        .12     30.03  FORMALDEHYDE                        43
627:C0120  43551      28.00     58.08  ACETONE                             53
628:C0121      95.00   5.00            C0121                                2
629:C0121  43201       4.22     16.04  METHANE                             13
630:C0121  43202       3.16     30.07  ETHANE                              23
631:C0121  43203       4.75     28.05  ETHYLENE                            33
632:C0121  43205      17.61     42.08  PROPYLENE                           43
633:C0121  43206       5.77     26.04  ACETYLENE                           53
634:C0121  43231       7.49     86.18  N-HEXANE                            63
635:C0121  43232      31.99    100.21  N-HEPTANE                           73
636:C0121  45201       2.66     78.12  BENZENE                             83
637:C0121  45202      10.21     92.15  TOLUENE                             93
638:C0121  45205       3.92    106.17  1,3 DIMETHYLBENZENE                103
639:C0121  45207       3.48    120.19  1,3,5-TRIMETHYLBENZENE             113
640:C0121  45212       4.44    120.19  M-ETHYLTOLUENE                     123
641:C0121  45232       0.28    132.00  TETRAMETHYLBENZENE                 133
642:K0001      98.00   2.00  42.00     101004                               2
643:K0001  43212      14.00     58.12  N-BUTANE                            13
644:K0001  43231       5.00     86.18  N-HEXANE                            23
645:K0001  43502      42.00     30.03  FORMALDEHYDE                        33
646:K0001  43551      28.00     58.08  ACETONE                             43
647:K0001  43201      11.00     16.04  METHANE                             53
648:K0002      98.00   2.00  48.70     101005                               2
649:K0002  43105       5.20     86.18  ISOMERS OF HEXANE                   13
650:K0002  43106       2.60    100.21  ISOMERS OF HEPTANE                  23
651:K0002  43107       4.70    114.23  ISOMERS OF OCTANE                   33
652:K0002  43122       5.50     72.15  ISOMERS OF PENTANE                  43
653:K0002  43204       1.20     44.09  PROPANE                             53
654:K0002  43212      12.20     58.12  N-BUTANE                            63
655:K0002  43214       4.10     58.12  ISOBUTANE                           73
656:K0002  43220       4.70     72.15  N-PENTANE                           83
657:K0002  43231      10.80     86.18  N-HEXANE                            93
658:K0002  43232        .30    100.21  N-HEPTANE                          103
659:K0002  43502      48.70     30.03  FORMALDEHYDE                       113
```

## TABLE E-4 (continued)

```
660:K0003      95.00   5.00   8.00      101006                          2
661:K0003 43105         1.00       86.18  ISOMERS OF HEXANE            13
662:K0003 43122         9.00       72.15  ISOMERS OF PENTANE           23
663:K0003 43204         4.00       44.09  PROPANE                      33
664:K0003 43212         9.00       58.12  N-BUTANE                     43
665:K0003 43220         6.00       72.15  N-PENTANE                    53
666:K0003 43248         1.00       84.16  CYCLOHEXANE                  63
667:K0003 45202         2.00       92.15  TOLUENE                      73
668:K0003 43502         8.00       30.03  FORMALDEHYDE                 83
669:K0003 43201        56.00       16.04  METHANE                      93
670:K0003 45201         4.00       78.12  BENZENE                     103
671:K0004      95.00   5.00   7.60      101007                          2
672:K0004 43204        18.90       44.09  PROPANE                      13
673:K0004 43212        23.10       58.12  N-BUTANE                     23
674:K0004 43214         4.40       58.12  ISOBUTANE                    33
675:K0004 43205        17.50       42.08  PROPYLENE                    43
676:K0004 43502         7.60       30.03  FORMALDEHYDE                 53
677:K0004 43201         7.60       16.04  METHANE                      63
678:K0004 43202        20.90       30.07  ETHANE                       73
679:K0005      97.00   3.00             102008                          2
680:K0005 43203        11.70       28.05  ETHYLENE                     13
681:K0005 43205          .30       42.08  PROPYLENE                    23
682:K0005 43206          .80       26.04  ACETYLENE                    33
683:K0005 43201        82.80       16.04  METHANE                      43
684:K0005 43202         2.50       30.07  ETHANE                       53
685:K0005 45201         1.90       78.12  BENZENE                      63
686:K0007      94.00   6.00  30.00      201002                          2
687:K0007 43502        30.00       30.03  FORMALDEHYDE                 13
688:K0007 43201        70.00       16.04  METHANE                      23
689:K0008      95.00   5.00  00.00    201003                            2
690:K0008 43201        11.60       16.04  METHANE                      13
691:K0008 43202         2.80       30.07  ETHANE                       23
692:K0008 43203        28.70       28.05  ETHYLENE                     33
693:K0008 43205        17.30       42.08  PROPYLENE                    43
694:K0008 43206        11.30       26.04  ACETYLENE                    53
695:K0008 43213        13.40       56.10  BUTENE                       63
696:K0008 43218         7.00       54.09  1,3 BUTADIENE                73
697:K0008 45201         7.90       78.12  BENZENE                      83
698:K0009      90.00  10.00             202001                          2
699:K0009 43203        28.70       28.05  ETHYLENE                     13
700:K0009 43205        17.30       42.08  PROPYLENE                    23
701:K0009 43213        13.40       56.10  BUTENE                       33
702:K0009 43218         7.00       54.09  1,3-BUTADIENE                43
703:K0009 43206        11.30       26.04  ACETYLENE                    53
704:K0009 43201        11.60       16.04  METHANE                      63
705:K0009 43202         2.80       30.07  ETHANE                       73
706:K0009 45201         7.90       78.12  BENZENE                      83
707:K0010      94.00   6.00  01.00    202002A                           2
708:K0010 43204        10.00       44.09  PROPANE                      13
709:K0010 43212         1.00       58.12  N-BUTANE                     23
710:K0010 43214         1.00       58.12  ISOBUTANE                    33
711:K0010 43203         1.00       28.05  ETHYLENE                     43
712:K0010 43502         1.00       30.03  FORMALDEHYDE                 53
713:K0010 43201        76.00       16.04  METHANE                      63
714:K0010 43202        10.00       30.07  ETHANE                       73
715:K0011      95.00   5.00  00.00    303003                            2
716:K0011 43204          .50       44.09  PROPANE                      13
717:K0011 43203        27.70       28.05  ETHYLENE                     23
718:K0011 43205         1.90       42.08  PROPYLENE                    33
719:K0011 43213          .10       56.10  BUTENE                       43
```

## TABLE E-4 (continued)

```
720:K0011  43218          .50     54.09  1,3-BUTADIENE                53
721:K0011  45202          .70     92.15  TOLUENE                      63
722:K0011  43206         1.20     26.04  ACETYLENE                    73
723:K0011  43201        45.30     16.04  METHANE                      83
724:K0011  43202         8.00     30.07  ETHANE                       93
725:K0011  45201        14.10     78.12  BENZENE                     103
726:K0012      95.00   5.00  00.00     303008A                         2
727:K0012  43822        84.20     93.19  TRIMETHYLFLUOROSILANE        13
728:K0012  43201        15.80     16.04  METHANE                      23
729:K0013      95.00   5.00            303008B                         2
730:K0013  43203         5.90     28.05  ETHYLENE                     13
731:K0013  43205         3.00     42.08  PROPYLENE                    23
732:K0013  43206        14.80     26.04  ACETYLENE                    33
733:K0013  43201        73.30     16.04  METHANE                      43
734:K0013  43202         3.00     30.07  ETHANE                       53
735:K0016      95.00   5.00            303009C                         2
736:K0016  43204        39.90     44.09  PROPANE                      13
737:K0016  43822        49.00     93.19  TRIMETHYLFLUOROSILANE        23
738:K0016  43201        11.10     16.04  METHANE                      33
739:K0021      00.00  00.00  02.50     305001A                         2
740:K0021  43105         1.80     86.18  ISOMERS OF HEXANE            13
741:K0021  43106         3.60    100.21  ISOMERS OF HEPTANE           23
742:K0021  43231         1.80     86.18  N-HEXANE                     33
743:K0021  43232        15.80    100.21  N-HEPTANE                    43
744:K0021  43233        74.50    114.23  N-OCTANE                     53
745:K0021  43502         2.50     30.03  FORMALDEHYDE                 63
746:K0022      00.00  00.00  00.00     305001B                         2
747:K0022  43105        12.00     86.18  ISOMERS OF HEXANE            13
748:K0022  43106        11.00    100.21  ISOMERS OF HEPTANE           23
749:K0022  43107         1.00    114.23  ISOMERS OF OCTANE            33
750:K0022  43204        13.00     44.09  PROPANE                      43
751:K0022  43212        18.00     58.12  N-BUTANE                     53
752:K0022  43214         8.00     58.12  ISOBUTANE                    63
753:K0022  43220        18.00     72.15  N-PENTANE                    73
754:K0022  43231         2.00     86.18  N-HEXANE                     83
755:K0022  43232        14.00    100.21  N-HEPTANE                    93
756:K0022  43203         2.00     28.05  ETHYLENE                    103
757:K0022  43202         1.00     30.07  ETHANE                      113
758:K0024      90.00  10.00  00.00     305001D                         2
759:K0024  43105         3.40     86.18  ISOMERS OF HEXANE            13
760:K0024  43107         7.40    114.23  ISOMERS OF OCTANE            23
761:K0024  43115         2.90     98.19  C-7 CYCLOPARAFFINS           33
762:K0024  43116          .40    112.23  C-8 CYCLOPARAFFINS           43
763:K0024  43117         1.50    126.26  C-9 CYCLOPARAFFINS           53
764:K0024  43122         1.10     72.15  ISOMERS OF PENTANE           63
765:K0024  43204        10.20     44.09  PROPANE                      73
766:K0024  43212        11.60     58.12  N-BUTANE                     83
767:K0024  43214          .70     58.12  ISOBUTANE                    93
768:K0024  43220         6.30     72.15  N-PENTANE                   103
769:K0024  43231         4.90     86.18  N-HEXANE                    113
770:K0024  43232         2.00    100.21  N-HEPTANE                   123
771:K0024  43233         2.70    114.23  N-OCTANE                    133
772:K0024  43242         2.50     70.14  CYCLOPENTANE                143
773:K0024  43121          .50     70.14  ISOMERS OF PENTENE          153
774:K0024  43203          .30     28.05  ETHYLENE                    163
775:K0024  43205         2.00     42.08  PROPYLENE                   173
776:K0024  43213         7.00     56.10  BUTENE                      183
777:K0024  43224         3.20     70.14  1-PENTENE                   193
778:K0024  45202         1.90     92.15  TOLUENE                     203
779:K0024  43201        21.30     16.04  METHANE                     213
```

## TABLE E-4 (continued)

```
780:K0024  43202       5.40      30.07  ETHANE                   223
781:K0024  45201        .80      78.12  BENZENE                  233
782:K0025      95.00   5.00   8.00   305002A                       2
783:K0025  43105       1.00      86.18  ISOMERS OF HEXANE         13
784:K0025  43122       9.00      72.15  ISOMERS OF PENTANE        23
785:K0025  43204       4.00      44.09  PROPANE                   33
786:K0025  43212       9.00      58.12  N-BUTANE                  43
787:K0025  43220       6.00      72.15  N-PENTANE                 53
788:K0025  43248       1.00      84.16  CYCLOHEXANE               63
789:K0025  45202       2.00      92.15  TOLUENE                   73
790:K0025  43502       8.00      30.03  FORMALDEHYDE              83
791:K0025  43201      56.00      16.04  METHANE                   93
792:K0025  45201       4.00      78.12  BENZENE                  103
793:K0026      95.00   5.00          3050028                       2
794:K0026  43105       8.10      86.18  ISOMERS OF HEXANE         13
795:K0026  43115       3.70      98.19  C-7 CYCLOPARAFFINS        23
796:K0026  43122       5.70      72.15  ISOMERS OF PENTANE        33
797:K0026  43204       5.50      44.09  PROPANE                   43
798:K0026  43212      10.10      58.12  N-BUTANE                  53
799:K0026  43214      11.20      58.12  ISOBUTANE                 63
800:K0026  43220       5.30      72.15  N-PENTANE                 73
801:K0026  43203       2.00      28.05  ETHYLENE                  93
802:K0026  43205       3.90      42.08  PROPYLENE                103
803:K0026  43213       5.90      56.10  BUTENE                   113
804:K0026  43201      15.70      16.04  METHANE                  123
805:K0026  43202       4.60      30.07  ETHANE                   133
806:K0026  45201       9.50      78.12  BENZENE                  143
807:K0029      85.00  15.00  51.00   306002                        2
808:K0029  43105      13.00      86.18  ISOMERS OF HEXANE         13
809:K0029  43502      51.00      30.03  FORMALDEHYDE              23
810:K0029  43201      36.00      16.04  METHANE                   33
811:K0031      00.00  00.00  00.00   306005                        2
812:K0031  43105      12.20      86.18  ISOMERS OF HEXANE         13
813:K0031  43115      16.90      98.19  C-7 CYCLOPARAFFINS        23
814:K0031  43116       5.20     112.23  C-8 CYCLOPARAFFINS        33
815:K0031  43122      10.10      72.15  ISOMERS OF PENTANE        43
816:K0031  43204       5.90      44.09  PROPANE                   53
817:K0031  43212      14.30      58.12  N-BUTANE                  63
818:K0031  43214       4.50      58.12  ISOBUTANE                 73
819:K0031  43220      12.00      72.15  N-PENTANE                 83
820:K0031  43231      11.90      86.18  N-HEXANE                  93
821:K0031  43201       2.90      16.04  METHANE                  103
822:K0031  43202       1.70      30.07  ETHANE                   113
823:K0031  45201       2.40      78.12  BENZENE                  123
824:K0035      00.00  00.00  00.00   306007                        2
825:K0035  43122     100.00      72.15  ISOMERS OF PENTANE        13
826:K0038                            306008X                       2
827:K0038  43105       5.50      86.18  ISOMERS OF HEXANE         13
828:K0038  43106       4.10     100.21  ISOMERS OF HEPTANE        23
829:K0038  43107       2.80     114.23  ISOMERS OF OCTANE         33
830:K0038  43108       3.10     128.26  ISOMERS OF NONANE         43
831:K0038  43109       1.90     142.29  ISOMERS OF DECANE         53
832:K0038  43115       1.10      98.19  C-7 CYCLOPARAFFINS        63
833:K0038  43116        .10     112.23  C-8 CYCLOPARAFFINS        73
834:K0038  43117        .80     126.26  C-9 CYCLOPARAFFINS        83
835:K0038  43122       6.60      72.15  ISOMERS OF PENTANE        93
836:K0038  43204       3.70      44.09  PROPANE                  103
837:K0038  43212       7.90      58.12  N-BUTANE                 113
838:K0038  43214        .80      58.12  ISOBUTANE                123
839:K0038  43220      11.10      72.15  N-PENTANE                133
```

## TABLE E-4 (continued)

```
840:K0038  43231       11.00     86.18  N-HEXANE                                 143
841:K0038  43232        8.50    100.21  N-HEPTANE                                153
842:K0038  43233       12.00    114.23  N-OCTANE                                 163
843:K0038  43235        3.90    128.26  N-NONANE                                 173
844:K0038  43238        5.10    142.29  N-DECANE                                 183
845:K0038  43248         .50     84.16  CYCLOHEXANE                              193
846:K0038  43213         .20     56.10  BUTENE                                   203
847:K0038  45102        1.30    106.17  ISOMERS OF XYLENE                        213
848:K0038  45202        3.00     92.15  TOLUENE                                  223
849:K0038  43201        3.30     16.04  METHANE                                  233
850:K0038  43202        1.20     30.07  ETHANE                                   243
851:K0038  45201         .50     78.12  BENZENE                                  253
852:K0039  00.00  00.00  00.00    3060082                                          2
853:K0039  43105        1.00     86.18  ISOMERS OF HEXANE                         13
854:K0039  43106         .10    100.21  ISOMERS OF HEPTANE                        23
855:K0039  43122        8.60     72.15  ISOMERS OF PENTANE                        33
856:K0039  43204       16.00     44.09  PROPANE                                   43
857:K0039  43212       23.20     58.12  N-BUTANE                                  53
858:K0039  43214       10.00     58.12  ISOBUTANE                                 63
859:K0039  43220        7.60     72.15  N-PENTANE                                 73
860:K0039  43231        4.60     86.18  N-HEXANE                                  83
861:K0039  43205        8.80     42.08  PROPYLENE                                 93
862:K0039  43213        1.20     56.10  BUTENE                                   103
863:K0039  43201       13.30     16.04  METHANE                                  113
864:K0039  43202        5.60     30.07  ETHANE                                   123
865:K0047  00.00  00.00  00.00    306008N                                          2
866:K0047  43204       90.40     44.09  PROPANE                                   13
867:K0047  43214         .40     58.12  ISOBUTANE                                 23
868:K0047  43205        5.10     42.08  PROPYLENE                                 33
869:K0047  43202        4.10     30.07  ETHANE                                    43
870:K0051     95.00   5.00  20.00     306009                                       2
871:K0051  43204       30.00     44.09  PROPANE                                   13
872:K0051  43502       20.00     30.03  FORMALDEHYDE                              23
873:K0051  43201       20.00     16.04  METHANE                                   33
874:K0051  43202       30.00     30.07  ETHANE                                    43
875:K0053                    00.00     306013                                      2
876:K0053  43105         .80     86.18  ISOMERS OF HEXANE                         13
877:K0053  43107         .70    114.23  ISOMERS OF OCTANE                         23
878:K0053  43108        2.50    128.26  ISOMERS OF NONANE                         33
879:K0053  43109        2.00    142.29  ISOMERS OF DECANE                         43
880:K0053  43115         .30     98.19  C-7 CYCLOPARAFFINS                        53
881:K0053  43117         .60    126.26  C-9 CYCLOPARAFFINS                        63
882:K0053  43122         .90     72.15  ISOMERS OF PENTANE                        73
883:K0053  43204       26.70     44.09  PROPANE                                   83
884:K0053  43212       22.60     58.12  N-BUTANE                                  93
885:K0053  43214       20.70     58.12  ISOBUTANE                                103
886:K0053  43220         .20     72.15  N-PENTANE                                113
887:K0053  43231         .80     86.18  N-HEXANE                                 123
888:K0053  43232         .20    100.21  N-HEPTANE                                133
889:K0053  43233         .80    114.23  N-OCTANE                                 143
890:K0053  43235        1.00    128.26  N-NONANE                                 153
891:K0053  43248         .20     84.16  CYCLOHEXANE                              163
892:K0053  45102         .80    106.17  ISOMERS OF XYLENE                        173
893:K0053  45202         .80     92.15  TOLUENE                                  183
894:K0053  43201         .90     16.04  METHANE                                  193
895:K0053  43202       16.20     30.07  ETHANE                                   203
896:K0053  45201         .30     78.12  BENZENE                                  213
897:K0056     90.00  10.00                402008C                                  2
898:K0056  43106         .70    100.21  ISOMERS OF HEPTANE                        13
899:K0056  43107         .60    114.23  ISOMERS OF OCTANE                         23
```

## TABLE E-4 (continued)

```
900:K0056  43108       10.10    128.26  ISOMERS OF NONANE                     33
901:K0056  43115        1.40     98.19  C-7 CYCLOPARAFFINS                    43
902:K0056  43116       25.60    112.23  C-8 CYCLOPARAFFINS                    53
903:K0056  43117        5.00    126.26  C-9 CYCLOPARAFFINS                    63
904:K0056  43231         .20     86.18  N-HEXANE                              73
905:K0056  43232        1.40    100.21  N-HEPTANE                             83
906:K0056  43233       46.50    114.23  N-OCTANE                              93
907:K0056  43235        7.30    128.26  N-NONANE                             103
908:K0056  45102        1.00    106.17  ISOMERS OF XYLENE                    113
909:K0056  45202         .20     92.15  TOLUENE                              123
910:K0060     00.00  00.00  00.00    330001                                    2
911:K0060  43551       20.00     58.08  ACETONE                               13
912:K0060  43552       21.40     72.10  METHYL ETHYL KETONE                   23
913:K0060  43560        8.60    100.16  METHYL ISOBUTYL KETONE                33
914:K0060  43301        5.60     32.04  METHYL ALCOHOL                        43
915:K0060  43302        4.50     46.07  ETHYL ALCOHOL                         53
916:K0060  43304       16.40     60.09  ISOPROPYL ALCOHOL                     63
917:K0060  43305       23.50     74.12  N-BUTYL ALCOHOL                       73
918:K0066     00.00  00.00  00.00    301015                                    2
919:K0066  43551       38.70     58.08  ACETONE                               13
920:K0066  43552       41.60     72.10  METHYL ETHYL KETONE                   23
921:K0066  43560       16.70    100.16  METHYL ISOBUTYL KETONE                33
922:K0066  43367        3.00     62.07  GLYCOL ETHER                          43
923:K0067     00.00  00.00  00.00   301018A                                    2
924:K0067  43860      100.00     62.50  VINYL CHLORIDE                        13
925:K0068     00.00  00.00  00.00   301018B                                    2
926:K0068  43205      100.00     42.08  PROPYLENE                             13
927:K0071                           301019A                                    2
928:K0071  43122       22.60     72.15  ISOMERS OF PENTANE                    13
929:K0071  43204       10.80     44.09  PROPANE                               23
930:K0071  43212       33.90     58.12  N-BUTANE                              33
931:K0071  43231       21.40     86.18  N-HEXANE                              43
932:K0071  43248       11.30     84.16  CYCLOHEXANE                           53
933:K0072     00.00  00.00  00.00    301020                                    2
934:K0072  43118       25.50    114.00  MINERAL SPIRITS                       13
935:K0072  43248        5.00     84.16  CYCLOHEXANE                           23
936:K0072  45106        3.50    134.21  ISOMERS OF DIETHYLBENZENE             33
937:K0072  45203        3.00    106.17  ETHYLBENZENE                          43
938:K0072  43551        5.50     58.08  ACETONE                               53
939:K0072  43552        5.00     72.10  METHYL ETHYL KETONE                   63
940:K0072  43301        5.00     32.04  METHYL ALCOHOL                        73
941:K0072  43302        2.50     46.07  ETHYL ALCOHOL                         83
942:K0072  43304       38.00     60.09  ISOPROPYL ALCOHOL                     93
943:K0072  43305        3.00     74.12  N-BUTYL ALCOHOL                      103
944:K0072  43435        4.00    116.16  N-BUTYL ACETATE                      113
945:K0076                   00.00    935705                                    2
946:K0076  43105        8.10     86.18  ISOMERS OF HEXANE                     13
947:K0076  43115       15.40     98.19  C-7 CYCLOPARAFFINS                    23
948:K0076  43116        1.60    112.23  C-8 CYCLOPARAFFINS                    33
949:K0076  43118       15.00    114.00  MINERAL SPIRITS                       43
950:K0076  43122        3.10     72.15  ISOMERS OF PENTANE                    53
951:K0076  43204        1.80     44.09  PROPANE                               63
952:K0076  43212        4.40     58.12  N-BUTANE                              73
953:K0076  43214        1.40     58.12  ISOBUTANE                             83
954:K0076  43220        3.20     72.15  N-PENTANE                             93
955:K0076  43231        3.70     86.18  N-HEXANE                             103
956:K0076  45102       15.00    106.17  ISOMERS OF XYLENE                    113
957:K0076  45202        5.00     92.15  TOLUENE                              123
958:K0076  43819       10.00    173.85  METHYLENE BROMIDE                    133
959:K0076  45201       12.30     78.12  BENZENE                              143
```

## TABLE E-4 (continued)

```
960:K0078         00.00  00.00  00.00     301125                               2
961:K0078  43815        100.00      99.00  ETHYLENE DICHLORIDE                13
962:K0079         95.00   5.00   1.70     301999                               2
963:K0079  43248          1.80      84.16  CYCLOHEXANE                        13
964:K0079  43120          8.90      56.10  ISOMERS OF BUTENE                  23
965:K0079  43203         21.60      28.05  ETHYLENE                           33
966:K0079  43205          9.00      42.08  PROPYLENE                          43
967:K0079  43213          4.10      56.10  BUTENE                             53
968:K0079  45102          1.30     106.17  ISOMERS OF XYLENE                  63
969:K0079  45202          4.10      92.15  TOLUENE                            73
970:K0079  45220          3.40     104.16  STYRENE                            83
971:K0079  43502          1.70      30.03  FORMALDEHYDE                       93
972:K0079  43503           .70      44.05  ACETALDEHYDE                      103
973:K0079  43510           .80      72.12  BUTYRALDEHYDE                     113
974:K0079  43206          1.00      26.04  ACETYLENE                         123
975:K0079  43301          5.40      32.04  METHYL ALCOHOL                    133
976:K0079  43302          1.40      46.07  ETHYL ALCOHOL                     143
977:K0079  43304          2.50      60.09  ISOPROPYL ALCOHOL                 153
978:K0079  43305           .50      74.12  N-BUTYL ALCOHOL                   163
979:K0079  43438           .80     100.11  ETHYL ACRYLATE                    173
980:K0079  43601          4.60      44.05  ETHYLENE  OXIDE                   183
981:K0079  43602          1.40      58.08  PROPYLENE OXIDE                   193
982:K0079  43704          3.00      55.06  ACRYLONITRILE                     203
983:K0079  43812          7.20      64.52  ETHYL CHLORIDE                    213
984:K0079  43860           .60      62.50  VINYL CHLORIDE                    223
985:K0079  45300          2.00      94.11  PHENOLS                           233
986:K0079  45401          1.30     230.00  XYLENE BASE ACIDS                 243
987:K0079  43801           .90      50.49  METHYL CHLORIDE                   253
988:K0079  45201         10.00      78.12  BENZENE                           263
989:K0085         00.00  00.00  00.00     401001C                              2
990:K0085  43817        100.00     165.83  PERCHLOROETHYLENE                  13
991:K0086         00.00  00.00  00.00     401001B                              2
992:K0086  43107           .80     114.23  ISOMERS OF OCTANE                  13
993:K0086  43108         27.30     128.26  ISOMERS OF NONANE                  23
994:K0086  43109         69.30     142.29  ISOMERS OF DECANE                  33
995:K0086  43110          2.60     156.32  ISOMERS OF UNDECANE                43
996:K0087         00.00  00.00  00.00     401001A                              2
997:K0087  43814        100.00     133.42  1,1,1,-TRICHLOROETHANE             13
998:K0088                                 401002E                              2
999:K0088  43811        100.00     137.37  TRICHLOROFLUOROMETHANE             13
1000:K0089        00.00  00.00  00.00     401002A                              2
1001:K0089 43820        100.00     133.42  1,1,2-TRICHLOROETHANE              13
1002:K0090        00.00  00.00  00.00     401002D                              2
1003:K0090 45202        100.00      92.15  TOLUENE                             3
1004:K0092        90.00  10.00  00.00     402008A                              2
1005:K0092 43204          3.10      44.09  PROPANE                            13
1006:K0092 43212         23.40      58.12  N-BUTANE                           23
1007:K0092 43203          2.00      28.05  ETHYLENE                           33
1008:K0092 43201         66.50      16.04  METHANE                            43
1009:K0092 43202          5.00      30.07  ETHANE                             53
1010:K0096        00.00  00.00  00.00     402009A                              2
1011:K0096 43107           .40     114.23  ISOMERS OF OCTANE                  13
1012:K0096 43108         10.90     128.26  ISOMERS OF NONANE                  23
1013:K0096 43109         27.80     142.29  ISOMERS OF DECANE                  33
1014:K0096 43110          1.00     156.32  ISOMERS OF UNDECANE                43
1015:K0096 45102          4.00     106.17  ISOMERS OF XYLENE                  53
1016:K0096 45202          4.00      92.15  TOLUENE                            63
1017:K0096 43551         10.00      58.08  ACETONE                            73
1018:K0096 43552         10.00      72.10  METHYL ETHYL KETONE                83
1019:K0096 43560          5.00     100.16  METHYL ISOBUTYL KETONE             93
```

# TABLE E-4 (continued)

```
1020:K0096  43301        5.60     32.04  METHYL ALCOHOL                   103
1021:K0096  43302        5.60     46.07  ETHYL ALCOHOL                    113
1022:K0096  43304        5.70     60.09  ISOPROPYL ALCOHOL                123
1023:K0096  43817       10.00    165.83  PERCHLOROETHYLENE                133
1024:K0098                          403001A                                 2
1025:K0098  43204         .10     44.09  PROPANE                           13
1026:K0098  43212        2.20     58.12  N-BUTANE                          23
1027:K0098  43214         .50     58.12  ISOBUTANE                         33
1028:K0098  43220       12.20     72.15  N-PENTANE                         43
1029:K0098  43231       16.30     86.18  N-HEXANE                          53
1030:K0098  43232        9.30    100.21  N-HEPTANE                         63
1031:K0098  43233       10.10    114.23  N-OCTANE                          73
1032:K0098  43235        1.80    128.26  N-NONANE                          83
1033:K0098  43238        2.60    142.29  N-DECANE                          93
1034:K0098  43213         .40     56.10  BUTENE                           103
1035:K0098  43224        2.50     70.14  1-PENTENE                        113
1036:K0098  45102       13.50    106.17  ISOMERS OF XYLENE                123
1037:K0098  45104        6.50    120.19  ISOMERS OF ETHYLTOLUENE          133
1038:K0098  45105        4.40    134.22  ISOMERS OF BUTYLBENZENE          143
1039:K0098  45107        5.50    120.19  ISOMERS OF TRIMETHYLBENZENE      153
1040:K0098  45202        9.70     92.15  TOLUENE                          163
1041:K0098  45201        2.40     78.12  BENZENE                          173
1042:K0100                  00.00    403001E                                2
1043:K0100  43232         .10    100.21  N-HEPTANE                         13
1044:K0100  43233         .50    114.23  N-OCTANE                          23
1045:K0100  43235        4.70    128.26  N-NONANE                          33
1046:K0100  43238       19.60    142.29  N-DECANE                          43
1047:K0100  43241       20.30    156.32  N-UNDECANE                        53
1048:K0100  43255       18.20    170.34  N-DODECANE                        63
1049:K0100  43258       17.70    184.37  N-TRIDECANE                       73
1050:K0100  43259       11.70    198.40  N-TETRADECANE                     83
1051:K0100  43260        7.20    212.42  N-PENTADECANE                     93
1052:K0121     85.00  15.00           501002                                2
1053:K0121  43204        1.90     44.09  PROPANE                           13
1054:K0121  43212        1.90     58.12  N-BUTANE                          23
1055:K0121  43214        1.90     58.12  ISOBUTANE                         33
1056:K0121  43220        1.90     72.15  N-PENTANE                         43
1057:K0121  43231       13.90     86.18  N-HEXANE                          53
1058:K0121  43232       13.90    100.21  N-HEPTANE                         63
1059:K0121  43233       13.80    114.23  N-OCTANE                          73
1060:K0121  43121       11.80     70.14  ISOMERS OF PENTENE                83
1061:K0121  43203       19.40     28.05  ETHYLENE                          93
1062:K0121  43213        5.90     56.10  BUTENE                           103
1063:K0121  43224       11.80     70.14  1-PENTENE                        113
1064:K0121  43206        1.90     26.04  ACETYLENE                        123
1065:K0122     85.00  15.00           501005                                2
1066:K0122  43203        8.70     28.05  ETHYLENE                          13
1067:K0122  43205         .50     42.08  PROPYLENE                         23
1068:K0122  43201       80.40     16.04  METHANE                           33
1069:K0122  43202        2.70     30.07  ETHANE                            43
1070:K0122  45201        7.70     78.12  BENZENE                           53
1071:K0125     00.00  00.00  00.00   402001A                                2
1072:K0125  45102       22.30    106.17  ISOMERS OF XYLENE                 13
1073:K0125  45202       55.10     92.15  TOLUENE                           23
1074:K0125  43551       12.20     58.08  ACETONE                           33
1075:K0125  43552       10.40     72.10  METHYL ETHYL KETONE               43
1076:K0127     00.00  00.00  00.00   402003A                                2
1077:K0127  43551       38.70     58.08  ACETONE                           13
1078:K0127  43552       41.60     72.10  METHYL ETHYL KETONE               23
1079:K0127  43560       16.70    100.16  METHYL ISOBUTYL KETONE            33
```

## TABLE E-4 (continued)

```
1080:K0127  43367       3.00     62.07  GLYCOL ETHER                     43
1081:K0134                            402006A                             2
1082:K0134  43118      41.00    114.00  MINERAL SPIRITS                  13
1083:K0134  45101       1.00    114.00  NAPHTHA                          23
1084:K0134  45102       4.90    106.17  ISOMERS OF XYLENE                33
1085:K0134  45202       3.90     92.15  TOLUENE                          43
1086:K0134  43551       7.10     58.08  ACETONE                          53
1087:K0134  43552       7.70     72.10  METHYL ETHYL KETONE              63
1088:K0134  43560       3.10    100.16  METHYL ISOBUTYL KETONE           73
1089:K0134  43301       1.00     32.04  METHYL ALCOHOL                   83
1090:K0134  43302        .80     46.07  ETHYL ALCOHOL                    93
1091:K0134  43304       2.80     60.09  ISOPROPYL ALCOHOL               103
1092:K0134  43305       4.00     74.12  N-BUTYL ALCOHOL                 113
1093:K0134  43367      11.50     62.07  GLYCOL ETHER                    123
1094:K0134  43433        .90     88.10  ETHYL ACETATE                   133
1095:K0134  43435       9.50    116.16  N-BUTYL ACETATE                 143
1096:K0134  43444        .80    104.00  ISOPROPYL ACETATE               153
1097:K0141     90.00  10.00  00.00    402007A                             2
1098:K0141  45102      22.00    106.17  ISOMERS OF XYLENE                13
1099:K0141  45202      54.00     92.15  TOLUENE                          23
1100:K0141  43551      13.00     58.08  ACETONE                          33
1101:K0141  43552      11.00     72.10  METHYL ETHYL KETONE              43
1102:K0145                            402007D                             2
1103:K0145  43817     100.00    165.83  PERCHLOROETHYLENE                13
1104:K0147     00.00  00.00  00.00    402004C                             2
1105:K0147  43118       6.40    114.00  MINERAL SPIRITS                  13
1106:K0147  43233       4.60    114.23  N-OCTANE                         23
1107:K0147  43248       6.40     84.16  CYCLOHEXANE                      33
1108:K0147  45202      13.90     92.15  TOLUENE                          43
1109:K0147  43552      16.60     72.10  METHYL ETHYL KETONE              53
1110:K0147  43304      11.70     60.09  ISOPROPYL ALCOHOL                63
1111:K0147  43305       4.00     74.12  N-BUTYL ALCOHOL                  73
1112:K0147  43308       5.60    102.00  BUTYL CELLOSOLVE                 83
1113:K0147  43435      30.80    116.16  N-BUTYL ACETATE                  93
1114:K0148     00.00  00.00  00.00    402004B                             2
1115:K0148  43118      25.00    114.00  MINERAL SPIRITS                  13
1116:K0148  45102       7.00    106.17  ISOMERS OF XYLENE                23
1117:K0148  45202      10.00     92.15  TOLUENE                          33
1118:K0148  43561       8.00     98.15  CYCLOHEXANONE                    43
1119:K0148  43551      13.00     58.08  ACETONE                          53
1120:K0148  43552      18.00     72.10  METHYL ETHYL KETONE              63
1121:K0148  43304      15.00     60.09  ISOPROPYL ALCOHOL                73
1122:K0148  43445       4.00    140.00  METHYL AMYL ACETATE              83
1123:K0149     00.00  00.00  00.00    402004A                             2
1124:K0149  43118      21.40    114.00  MINERAL SPIRITS                  13
1125:K0149  45202       9.40     92.15  TOLUENE                          23
1126:K0149  43552      14.20     72.10  METHYL ETHYL KETONE              33
1127:K0149  43311      26.60     90.12  CELLOSOLVE                       43
1128:K0149  43433      28.40     88.10  ETHYL ACETATE                    53
1129:K0156     00.00  00.00  00.00    402005A                             2
1130:K0156  43118      67.60    114.00  MINERAL SPIRITS                  13
1131:K0156  45102       4.00    106.17  ISOMERS OF XYLENE                23
1132:K0156  45202       3.20     92.15  TOLUENE                          33
1133:K0156  43551       6.30     58.08  ACETONE                          43
1134:K0156  43552       6.80     72.10  METHYL ETHYL KETONE              53
1135:K0156  43560       2.70    100.16  METHYL ISOBUTYL KETONE           63
1136:K0156  43301        .70     32.04  METHYL ALCOHOL                   73
1137:K0156  43302        .50     46.07  ETHYL ALCOHOL                    83
1138:K0156  43304       1.90     60.09  ISOPROPYL ALCOHOL                93
1139:K0156  43305       2.80     74.12  N-BUTYL ALCOHOL                 103
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 1140:K0156 | 43433 | .30 | 88.10 | ETHYL ACETATE | 113 |
| 1141:K0156 | 43435 | 2.90 | 116.16 | N-BUTYL ACETATE | 123 |
| 1142:K0156 | 43444 | .30 | 104.00 | ISOPROPYL ACETATE | 133 |
| 1143:K0157 | 00.00 | 00.00 | 00.00 | 4020005C | 2 |
| 1144:K0157 | 43118 | 13.20 | 114.00 | MINERAL SPIRITS | 13 |
| 1145:K0157 | 43233 | 5.30 | 114.23 | N-OCTANE | 23 |
| 1146:K0157 | 43248 | 13.20 | 84.16 | CYCLOHEXANE | 33 |
| 1147:K0157 | 43435 | 12.40 | 116.16 | N-BUTYL ACETATE | 43 |
| 1148:K0157 | 43452 | 5.00 | 132.00 | 2-ETHOXYETHYL ACETATE | 53 |
| 1149:K0157 | 43552 | 24.70 | 72.10 | METHYL ETHYL KETONE | 63 |
| 1150:K0157 | 43823 | 13.90 | 120.91 | DICHLORODIFLUOROMETHANE | 73 |
| 1151:K0157 | 45202 | 12.30 | 92.15 | TOLUENE | 83 |
| 1152:K0162 | 95.00 | 05.00 | 3.30 | 402008E | 2 |
| 1153:K0162 | 43118 | 25.80 | 114.00 | MINERAL SPIRITS | 13 |
| 1154:K0162 | 43204 | .30 | 44.09 | PROPANE | 23 |
| 1155:K0162 | 43212 | .10 | 58.12 | N-BUTANE | 33 |
| 1156:K0162 | 43220 | .60 | 72.15 | N-PENTANE | 43 |
| 1157:K0162 | 43205 | 2.40 | 42.08 | PROPYLENE | 53 |
| 1158:K0162 | 43213 | .90 | 56.10 | BUTENE | 63 |
| 1159:K0162 | 43224 | 2.40 | 70.14 | 1-PENTENE | 73 |
| 1160:K0162 | 43502 | 3.30 | 30.03 | FORMALDEHYDE | 93 |
| 1161:K0162 | 43551 | .60 | 58.08 | ACETONE | 103 |
| 1162:K0162 | 43206 | .30 | 26.04 | ACETYLENE | 113 |
| 1163:K0162 | 43304 | 7.00 | 60.09 | ISOPROPYL ALCOHOL | 123 |
| 1164:K0162 | 43432 | 3.10 | 74.08 | METHYL ACETATE | 133 |
| 1165:K0162 | 43435 | 29.60 | 116.16 | N-BUTYL ACETATE | 143 |
| 1166:K0162 | 43444 | 12.50 | 104.00 | ISOPROPYL ACETATE | 153 |
| 1167:K0162 | 43201 | 9.00 | 16.04 | METHANE | 163 |
| 1168:K0162 | 45202 | 2.10 | 92.15 | TOLUENE | 83 |
| 1169:K0164 | | | | 402005D | 2 |
| 1170:K0164 | 43433 | 7.90 | 88.10 | ETHYL ACETATE | 13 |
| 1171:K0164 | 43435 | 84.50 | 116.16 | N-BUTYL ACETATE | 23 |
| 1172:K0164 | 43444 | 7.60 | 104.00 | ISOPROPYL ACETATE | 33 |
| 1173:K0166 | | | | 405002 | 2 |
| 1174:K0166 | 43201 | 63.00 | 16.04 | METHANE | 13 |
| 1175:K0166 | 43202 | 24.00 | 30.07 | ETHANE | 23 |
| 1176:K0166 | 43204 | 12.00 | 44.09 | PROPANE | 33 |
| 1177:K0166 | 43212 | 1.00 | 58.12 | N-BUTANE | 43 |
| 1178:K0172 | 00.00 | 00.00 | 00.00 | 405003A | 2 |
| 1179:K0172 | 43302 | 47.60 | 46.07 | ETHYL ALCOHOL | 13 |
| 1180:K0172 | 43303 | 24.30 | 60.09 | N-PROPYL ALCOHOL | 23 |
| 1181:K0172 | 43304 | 10.70 | 60.09 | ISOPROPYL ALCOHOL | 33 |
| 1182:K0172 | 43351 | .90 | 74.12 | ETHYL ETHER | 43 |
| 1183:K0172 | 43433 | 15.10 | 88.10 | ETHYL ACETATE | 53 |
| 1184:K0172 | 43452 | 1.40 | 132.00 | 2-ETHOXYETHYL ACETATE | 63 |
| 1185:K0181 | 00.00 | 00.00 | 00.00 | 405005A | 2 |
| 1186:K0181 | 43118 | 5.40 | 114.00 | MINERAL SPIRITS | 13 |
| 1187:K0181 | 43231 | 6.20 | 86.18 | N-HEXANE | 23 |
| 1188:K0181 | 43232 | 6.60 | 100.21 | N-HEPTANE | 33 |
| 1189:K0181 | 45202 | 12.00 | 92.15 | TOLUENE | 43 |
| 1190:K0181 | 43551 | .80 | 58.08 | ACETONE | 53 |
| 1191:K0181 | 43552 | 7.80 | 72.10 | METHYL ETHYL KETONE | 63 |
| 1192:K0181 | 43119 | 1.00 | 114.00 | LACTOL SPIRITS | 73 |
| 1193:K0181 | 43302 | 8.60 | 46.07 | ETHYL ALCOHOL | 83 |
| 1194:K0181 | 43303 | .30 | 60.09 | N-PROPYL ALCOHOL | 93 |
| 1195:K0181 | 43304 | 10.80 | 60.09 | ISOPROPYL ALCOHOL | 103 |
| 1196:K0181 | 43433 | 18.20 | 88.10 | ETHYL ACETATE | 113 |
| 1197:K0181 | 43434 | 1.30 | 102.13 | PROPYL ACETATE | 123 |
| 1198:K0181 | 43444 | 20.10 | 104.00 | ISOPROPYL ACETATE | 133 |
| 1199:K0181 | 43452 | .90 | 132.00 | 2-ETHOXYETHYL ACETATE | 143 |

## TABLE E-4 (continued)

```
1200:K0182      00.00  00.00  00.00    405005D                           2
1201:K0182  43118        51.00    114.00  MINERAL SPIRITS               13
1202:K0182  43248        10.00     84.16  CYCLOHEXANE                   23
1203:K0182  45106         7.00    134.21  ISOMERS OF DIETHYLBENZENE     33
1204:K0182  45203         6.00    106.17  ETHYLBENZENE                  43
1205:K0182  43301         6.00     32.04  METHYL ALCOHOL                53
1206:K0182  43304         6.00     60.09  ISOPROPYL ALCOHOL             63
1207:K0182  43305         6.00     74.12  N-BUTYL ALCOHOL               73
1208:K0182  43435         8.00    116.16  N-BUTYL ACETATE               83
1209:K0183      00.00  00.00  00.00    405005B                           2
1210:K0183  43118        83.00    114.00  MINERAL SPIRITS               13
1211:K0183  45102         4.00    106.17  ISOMERS OF XYLENE             23
1212:K0183  45202        13.00     92.15  TOLUENE                       33
1213:K0185      00.00  00.00  00.00    403001P                           2
1214:K0185  45202       100.00     92.15  TOLUENE                       13
1215:K0188                             403001Q                           2
1216:K0188  43105         1.30     86.18  ISOMERS OF HEXANE             13
1217:K0188  43112          .30    170.33  ISOMERS OF DODECANE           23
1218:K0188  43115         4.50     98.19  C-7 CYCLOPARAFFINS            33
1219:K0188  43116         1.30    112.23  C-8 CYCLOPARAFFINS            43
1220:K0188  43122         7.10     72.15  ISOMERS OF PENTANE            53
1221:K0188  43204        21.30     44.09  PROPANE                       63
1222:K0188  43212        16.60     58.12  N-BUTANE                      73
1223:K0188  43214         8.30     58.12  ISOBUTANE                     83
1224:K0188  43220         5.80     72.15  N-PENTANE                     93
1225:K0188  43231         4.20     86.18  N-HEXANE                     103
1226:K0188  43201        16.80     16.04  METHANE                      113
1227:K0188  43202        11.90     30.07  ETHANE                       123
1228:K0188  45201          .60     78.12  BENZENE                      133
1229:K0195                             901005                            2
1230:K0195  43201       100.00     16.04  METHANE                       13
1231:K0196                             935103                            2
1232:K0196  43231        20.80     86.18  N-HEXANE                      13
1233:K0196  43248        20.80     84.16  CYCLOHEXANE                   23
1234:K0196  45102         2.60    106.17  ISOMERS OF XYLENE             33
1235:K0196  45202         5.30     92.15  TOLUENE                       43
1236:K0196  45203         4.30    106.17  ETHYLBENZENE                  53
1237:K0196  43551         3.20     58.08  ACETONE                       63
1238:K0196  43552         5.70     72.10  METHYL ETHYL KETONE           73
1239:K0196  43559         0.70    100.16  METHYL N-BUTYL KETONE         83
1240:K0196  43560         0.60    100.16  METHYL ISOBUTYL KETONE        93
1241:K0196  43301         3.90     32.04  METHYL ALCOHOL               103
1242:K0196  43302         0.60     46.07  ETHYL ALCOHOL                113
1243:K0196  43304        16.50     60.09  ISOPROPYL ALCOHOL            123
1244:K0196  43305         1.60     74.12  N-BUTYL ALCOHOL              133
1245:K0196  43306         0.60     74.12  ISOBUTYL ALCOHOL             143
1246:K0196  43369         0.80     76.00  PROPYLENE GLYCOL             153
1247:K0196  43370         0.60     62.07  ETHYLENE GLYCOL              163
1248:K0196  43435         2.50    116.16  N-BUTYL ACETATE              173
1249:K0196  43446         1.50    116.16  ISOBUTYL ACETATE             183
1250:K0196  43451         6.10    144.21  ISOBUTYL ISOBUTYRATE         203
1251:K0196  43452         1.30    132.00  2-ETHOXYETHYL ACETATE        213
1252:K0197                   0.60      935702                            2
1253:K0197  43214         5.30     58.12  ISOBUTANE                     13
1254:K0197  45101         4.50    114.00  NAPHTHA                       23
1255:K0197  43502         0.60     30.03  FORMALDEHYDE                  33
1256:K0197  43551         1.40     58.08  ACETONE                       43
1257:K0197  43302        36.90     46.07  ETHYL ALCOHOL                 53
1258:K0197  43304        38.50     60.09  ISOPROPYL ALCOHOL             63
1259:K0197  43367         8.30     62.07  GLYCOL ETHER                  73
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 1260:K0197 | 43369 | 3.20 | 76.00 | PROPYLENE GLYCOL | 83 |
| 1261:K0197 | 43435 | 1.30 | 116.16 | N-BUTYL ACETATE | 93 |
| 1262:K0202 | | | | 949999A | 2 |
| 1263:K0202 | 43123 | .10 | 136.23 | TERPENES | 33 |
| 1264:K0202 | 43201 | 98.60 | 16.04 | METHANE | 43 |
| 1265:K0202 | 43202 | .10 | 30.07 | ETHANE | 53 |
| 1266:K0202 | 43204 | .10 | 44.09 | PROPANE | 63 |
| 1267:K0202 | 43212 | .20 | 58.12 | N-BUTANE | 73 |
| 1268:K0202 | 43214 | .10 | 58.12 | ISOBUTANE | 83 |
| 1269:K0202 | 43220 | .10 | 72.15 | N-PENTANE | 93 |
| 1270:K0202 | 43242 | .10 | 70.14 | CYCLOPENTANE | 103 |
| 1271:K0202 | 43817 | .30 | 165.83 | PERCHLOROETHYLENE | 113 |
| 1272:K0202 | 45102 | .10 | 106.17 | ISOMERS OF XYLENE | 123 |
| 1273:K0202 | 45202 | .10 | 92.15 | TOLUENE | 133 |
| 1274:K0203 | 00.00 | 00.00 | 00.00 | 9499998 | 2 |
| 1275:K0203 | 43201 | 70.00 | 16.04 | METHANE | 13 |
| 1276:K0203 | 43202 | 20.00 | 30.07 | ETHANE | 23 |
| 1277:K0203 | 43302 | 2.00 | 46.07 | ETHYL ALCOHOL | 33 |
| 1278:K0203 | 43304 | 2.00 | 60.09 | ISOPROPYL ALCOHOL | 43 |
| 1279:K0203 | 43434 | 2.00 | 102.13 | PROPYL ACETATE | 53 |
| 1280:K0203 | 43551 | 2.00 | 58.08 | ACETONE | 63 |
| 1281:K0203 | 43720 | 1.00 | 31.06 | METHYLAMINE | 73 |
| 1282:K0203 | 43740 | 1.00 | 59.11 | TRIMETHYL AMINE | 83 |
| 1283:K0211 | 00.00 | 00.00 | 00.00 | 302229 | 2 |
| 1284:K0211 | 43302 | 100.00 | 46.07 | ETHYL ALCOHOL | 13 |
| 1285:K0217 | | | | 390007 | 2 |
| 1286:K0217 | 43203 | 2.80 | 28.05 | ETHYLENE | 13 |
| 1287:K0217 | 43205 | 5.50 | 42.08 | PROPYLENE | 23 |
| 1288:K0217 | 43213 | 6.40 | 56.10 | BUTENE | 33 |
| 1289:K0217 | 43201 | 40.90 | 16.04 | METHANE | 43 |
| 1290:K0217 | 43202 | 1.40 | 30.07 | ETHANE | 53 |
| 1291:K0217 | 45201 | 43.00 | 78.12 | BENZENE | 63 |
| 1292:K0219 | 00.00 | 00.00 | 00.00 | 402001B | 2 |
| 1293:K0219 | 43551 | 100.00 | 58.08 | ACETONE | 13 |
| 1294:K0220 | 00.00 | 00.00 | 00.00 | 402001C | 2 |
| 1295:K0220 | 43433 | 100.00 | 88.10 | ETHYL ACETATE | 13 |
| 1296:K0221 | 00.00 | 00.00 | 00.00 | 402001D | 2 |
| 1297:K0221 | 43552 | 100.00 | 72.10 | METHYL ETHYL KETONE | 13 |
| 1298:K0222 | 00.00 | 00.00 | 00.00 | 402005E | 2 |
| 1299:K0222 | 43452 | 100.00 | 132.00 | 2-ETHOXYETHEL ACETATE | 13 |
| 1300:K0223 | | | | 402003E | 2 |
| 1301:K0223 | 45102 | 100.00 | 106.17 | ISOMERS OF XYLENE | 13 |
| 1302:K0226 | | | | 402009F | 2 |
| 1303:K0226 | 43302 | 100.00 | 46.07 | ETHYL ALCOHOL | 13 |
| 1304:K0227 | | | | 402009G | 2 |
| 1305:K0227 | 43304 | 100.00 | 60.09 | ISOPROPYL ALCOHOL | 13 |
| 1306:K0228 | 00.00 | 00.00 | 00.00 | 40200913 | 2 |
| 1307:K0228 | 43444 | 100.00 | 104.00 | ISOPROPYL ACETATE | 13 |
| 1308:K0229 | 00.00 | 00.00 | 00.00 | 40200915 | 2 |
| 1309:K0229 | 43119 | 100.00 | 114.00 | LACTOL SPIRITS | 13 |
| 1310:K0230 | 00.00 | 00.00 | 00.00 | 403001K | 2 |
| 1311:K0230 | 43231 | 100.00 | 86.18 | N-HEXANE | 13 |
| 1312:K0231 | 00.00 | 00.00 | 00.00 | 403001M | 2 |
| 1313:K0231 | 43122 | 100.00 | 72.15 | ISOMERS OF PENTANE | 13 |
| 1314:K0232 | | | | 403003 | 2 |
| 1315:K0232 | 43204 | 90.60 | 44.09 | PROPANE | 13 |
| 1316:K0232 | 43214 | .20 | 58.12 | ISOBUTANE | 23 |
| 1317:K0232 | 43205 | 5.10 | 42.08 | PROPYLENE | 33 |
| 1318:K0232 | 43202 | 4.10 | 30.07 | ETHANE | 43 |
| 1319:K0271 | 00.00 | 00.00 | 00.00 | 401002C | 2 |

# TABLE E-4 (continued)

```
1320:K0271  43824      100.00    131.40  TRICHLOROETHYLENE                       13
1321:K0272     95.00   5.00  00.00    301026A                                     2
1322:K0272  43106        4.70    100.21  ISOMERS OF HEPTANE                      13
1323:K0272  43107         .80    114.23  ISOMERS OF OCTANE                       23
1324:K0272  43115       43.20     98.19  C-7 CYCLOPARAFFINS                      33
1325:K0272  43116        6.00    112.23  C-8 CYCLOPARAFFINS                      43
1326:K0272  43231        5.80     86.18  N-HEXANE                                53
1327:K0272  43232        1.90    100.21  N-HEPTANE                               63
1328:K0272  43233         .40    114.23  N-OCTANE                                73
1329:K0272  43248       16.30     84.16  CYCLOHEXANE                             83
1330:K0272  43262       17.70     84.16  METHYLCYCLOPENTANE                      93
1331:K0272  45202         .40     92.15  TOLUENE                                103
1332:K0272  45201        2.80     78.12  BENZENE                                113
1333:K0273     00.00  00.00  00.00    301026B                                     2
1334:K0273  43105       24.20     86.18  ISOMERS OF HEXANE                       13
1335:K0273  43106         .20    100.21  ISOMERS OF HEPTANE                      23
1336:K0273  43231       33.60     86.18  N-HEXANE                                33
1337:K0273  43242         .20     70.14  CYCLOPENTANE                            43
1338:K0273  43248         .40     84.16  CYCLOHEXANE                             53
1339:K0273  43262       33.70     84.16  METHYLCYCLOPENTANE                      63
1340:K0273  45201        7.70     78.12  BENZENE                                 73
1341:K0274     00.00  00.00  00.00    301026C                                     2
1342:K0274  43115       99.84     98.19  C-7 CYCLOPARAFFINS                      13
1343:K0274  43116         .08    112.23  C-8 CYCLOPARAFFINS                      23
1344:K0274  43248         .04     84.16  CYCLOHEXANE                             33
1345:K0274  43262         .04     84.16  METHYLCYCLOPENTANE                      43
1346:K0275     00.00  00.00  00.00    401002B                                     2
1347:K0275  43802      100.00     84.94  DICHLOROMETHANE                         13
1348:K0276     00.00  00.00  00.00    301019B                                     2
1349:K0276  43204         .90     44.09  PROPANE                                 13
1350:K0276  43212        2.20     58.12  N-BUTANE                                23
1351:K0276  43214         .40     58.12  ISOBUTANE                               33
1352:K0276  43205        3.10     42.08  PROPYLENE                               43
1353:K0276  43551        8.60     58.08  ACETONE                                 53
1354:K0276  43206        4.40     26.04  ACETYLENE                               63
1355:K0276  43201       80.00     16.04  METHANE                                 73
1356:K0276  43202         .40     30.07  ETHANE                                  83
1357:K0277     00.00  00.00  00.00    491992F                                     2
1358:K0277  43821      100.00    187.38  TRICHLOROTRIFLUOROETHANE                13
1359:K0279     90.00  10.00  00.00    402008B                                     2
1360:K0279  43203        2.40     28.05  ETHYLENE                                13
1361:K0279  45202       10.60     92.15  TOLUENE                                 23
1362:K0279  43551       30.20     58.08  ACETONE                                 33
1363:K0279  43201       39.90     16.04  METHANE                                 43
1364:K0279  43202        2.40     30.07  ETHANE                                  53
1365:K0279  45201       14.50     78.12  BENZENE                                 63
1366:K0280     00.00  00.00  00.00    402006E                                     2
1367:K0280  45202        8.70     92.15  TOLUENE                                 13
1368:K0280  43551       68.90     58.08  ACETONE                                 23
1369:K0280  45201       22.40     78.12  BENZENE                                 33
1370:K0282     00.00  00.00  00.00    4020006G                                    2
1371:K0282  45101      100.00    114.00  NAPHTHA                                 13
1372:K0283     00.00  00.00  00.00    402006H                                     2
1373:K0283  43118      100.00    114.00  MINERAL SPIRITS                         13
1374:K0287     00.00  00.00  00.00    402007E                                     2
1375:K0287  45201      100.00     78.12  BENZENE                                 13
1376:K0288                            402009B                                     2
1377:K0288  43435      100.00    116.16  N-BUTYL ACETATE                         13
1378:K0289                            402009C                                     2
1379:K0289  43305      100.00     74.12  N-BUTYL ALCOHOL                         13
```

## TABLE E-4 (continued)

```
1380:K0290       00.00  00.00  00.00    40200906                              2
1381:K0290  43311      100.00      90.12  CELLOSOLVE                         13
1382:K0291       00.00  00.00  00.00    402009K                               2
1383:K0291  43301      100.00      32.04  METHYL ALCOHOL                     13
1384:K0292       00.00  00.00  00.00    49200908                              2
1385:K0292  43450      100.00      73.09  DIMETHYLFORMAMIDE                  13
1386:K0293                              402999A                               2
1387:K0293  43231       34.00      86.18  N-HEXANE                           13
1388:K0293  43248       43.10      84.16  CYCLOHEXANE                        23
1389:K0293  45102        6.60     106.17  ISOMERS OF XYLENE                  33
1390:K0293  45202        7.60      92.15  TOLUENE                            43
1391:K0293  45203        8.70     106.17  ETHYLBENZENE                       53
1392:K0294       00.00  00.00  00.00    402999B                               2
1393:K0294  45102       41.60     106.17  ISOMERS OF XYLENE                  13
1394:K0294  45104       12.20     120.19  ISOMERS OF ETHYLTOLUENE            23
1395:K0294  45107       20.10     120.19  ISOMERS OF TRIMETHYLBENZENE        33
1396:K0294  45108        2.10     120.19  ISOMERS OF PROPYLBENZENE           43
1397:K0294  45202       13.70      92.13  TOLUENE                            53
1398:K0294  45203       10.30     106.17  ETHYLBENZENE                       63
1399:K0296       00.00  00.00  00.00    403001C                               2
1400:K0296  43115        1.30      98.19  C-7 CYCLOPARAFFINS                 13
1401:K0296  43116         .50     112.23  C-8 CYCLOPARAFFINS                 23
1402:K0296  43122        1.50      72.15  ISOMERS OF PENTANE                 33
1403:K0296  43204       17.60      44.09  PROPANE                            43
1404:K0296  43212       27.10      58.12  N-BUTANE                           53
1405:K0296  43214        1.50      58.12  ISOBUTANE                          63
1406:K0296  43220       14.60      72.15  N-PENTANE                          73
1407:K0296  43231        7.90      86.18  N-HEXANE                           83
1408:K0296  43232        9.20     100.21  N-HEPTANE                          93
1409:K0296  43233        6.90     114.23  N-OCTANE                          103
1410:K0296  43201        6.20      16.04  METHANE                           113
1411:K0296  43202        5.60      30.07  ETHANE                            123
1412:K0296  45201         .10      78.12  BENZENE                           133
1413:K0297       00.00  00.00  00.00    403001D                               2
1414:K0297  43105        5.10      86.18  ISOMERS OF HEXANE                  13
1415:K0297  43106        5.00     100.21  ISOMERS OF HEPTANE                 23
1416:K0297  43107         .40     114.23  ISOMERS OF OCTANE                  33
1417:K0297  43122       11.20      72.15  ISOMERS OF PENTANE                 43
1418:K0297  43204       16.10      44.09  PROPANE                            53
1419:K0297  43212       20.80      58.12  N-BUTANE                           63
1420:K0297  43214        9.30      58.12  ISOBUTANE                          73
1421:K0297  43220       10.10      72.15  N-PENTANE                          83
1422:K0297  43231        4.70      86.18  N-HEXANE                           93
1423:K0297  43232        2.00     100.21  N-HEPTANE                         103
1424:K0297  45202        1.40      92.15  TOLUENE                           113
1425:K0297  43201        8.80      16.04  METHANE                           123
1426:K0297  43202        2.70      30.07  ETHANE                            133
1427:K0297  45201        2.40      78.12  BENZENE                           143
1428:K0298       00.00  00.00  00.00    403001F                               2
1429:K0298  45201      100.00      78.12  BENZENE                            13
1430:K0301       00.00  00.00  00.00    4030011                               2
1431:K0301  43232      100.00     100.21  N-HEPTANE                          13
1432:K0303       00.00  00.00  00.00    40300115                              2
1433:K0303  43220      100.00      72.15  N-PENTANE                          13
1434:K0305                                406002                              2
1435:K0305  43204       15.80      44.09  PROPANE                            13
1436:K0305  43212       30.20      58.12  N-BUTANE                           23
1437:K0305  43220       18.50      72.15  N-PENTANE                          33
1438:K0305  43231        8.80      86.18  N-HEXANE                           43
1439:K0305  43232       10.80     100.21  N-HEPTANE                          53
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 1440:K0305 | 43233 | 9.60 | 114.23 | N-OCTANE | 63 |
| 1441:K0305 | 43201 | 2.60 | 16.04 | METHANE | 73 |
| 1442:K0305 | 43202 | 3.70 | 30.07 | ETHANE | 83 |
| 1443:K0306 | 00.00 | 00.00 | 00.00 | 303009A | 2 |
| 1444:K0306 | 43231 | 1.67 | 86.18 | N-HEXANE | 13 |
| 1445:K0306 | 43232 | 6.86 | 100.21 | N-HEPTANE | 23 |
| 1446:K0306 | 43822 | 83.86 | 93.19 | TRIMETHYLFLUORISILANE | 33 |
| 1447:K0306 | 45201 | 3.05 | 78.12 | BENZENE | 43 |
| 1448:K0306 | 45202 | 4.56 | 92.15 | TOLUENE | 53 |
| 1449:K0307 | 85.00 | 15.00 | 00.00 | 913081 | 2 |
| 1450:K0307 | 43122 | 0.15 | 72.15 | ISOMERS OF PENTANE | 13 |
| 1451:K0307 | 43204 | 0.35 | 44.09 | PROPANE | 23 |
| 1452:K0307 | 43212 | 0.24 | 58.12 | N-BUTANE | 33 |
| 1453:K0307 | 43214 | 0.11 | 58.12 | ISOBUTANE | 43 |
| 1454:K0307 | 43120 | 0.92 | 56.10 | ISOMERS OF BUTENE | 53 |
| 1455:K0307 | 43203 | 19.11 | 28.05 | ETHYLENE | 63 |
| 1456:K0307 | 43205 | 3.93 | 42.08 | PROPYLENE | 73 |
| 1457:K0307 | 43213 | 0.81 | 56.10 | BUTENE | 83 |
| 1458:K0307 | 43218 | 0.52 | 54.09 | 1,3-BUTADIENE | 93 |
| 1459:K0307 | 43223 | 0.17 | 70.14 | 3-METHYL-1-BUTENE | 103 |
| 1460:K0307 | 43000 | 44.59 | 86.00 | UNIDENTIFIED HYDROCARBONS | 113 |
| 1461:K0307 | 43206 | 8.40 | 26.04 | ACETYLENE | 123 |
| 1462:K0307 | 43209 | 0.41 | 40.06 | METHYLACETYLENE | 133 |
| 1463:K0307 | 43201 | 9.82 | 16.04 | METHANE | 143 |
| 1464:K0307 | 43202 | 10.47 | 30.07 | ETHANE | 153 |
| 1465:K0316 | 00.00 | 00.00 | 00.00 | 306008A | 2 |
| 1466:K0316 | 43105 | 1.60 | 86.18 | ISOMERS OF HEXANE | 13 |
| 1467:K0316 | 43106 | .80 | 100.21 | ISOMERS OF HEPTANE | 23 |
| 1468:K0316 | 43107 | .40 | 114.23 | ISOMERS OF OCTANE | 33 |
| 1469:K0316 | 43108 | .50 | 128.26 | ISOMERS OF NONANE | 43 |
| 1470:K0316 | 43109 | .30 | 142.29 | ISOMERS OF DECANE | 53 |
| 1471:K0316 | 43115 | .20 | 98.19 | C-7 CYCLOPARAFFINS | 63 |
| 1472:K0316 | 43117 | .10 | 126.26 | C-9 CYCLOPARAFFINS | 73 |
| 1473:K0316 | 43122 | 7.80 | 72.15 | ISOMERS OF PENTANE | 83 |
| 1474:K0316 | 43204 | 11.50 | 44.09 | PROPANE | 93 |
| 1475:K0316 | 43212 | 18.30 | 58.12 | N-BUTANE | 103 |
| 1476:K0316 | 43214 | 7.40 | 58.12 | ISOBUTANE | 113 |
| 1477:K0316 | 43220 | 7.70 | 72.15 | N-PENTANE | 123 |
| 1478:K0316 | 43231 | 3.40 | 86.18 | N-HEXANE | 133 |
| 1479:K0316 | 43232 | 1.40 | 100.21 | N-HEPTANE | 143 |
| 1480:K0316 | 43233 | 1.80 | 114.23 | N-OCTANE | 153 |
| 1481:K0316 | 43235 | .60 | 128.26 | N-NONANE | 163 |
| 1482:K0316 | 43238 | .80 | 142.29 | N-DECANE | 173 |
| 1483:K0316 | 43248 | .10 | 84.16 | CYCLOHEXANE | 183 |
| 1484:K0316 | 43205 | .10 | 42.08 | PROPYLENE | 193 |
| 1485:K0316 | 45102 | .20 | 106.17 | ISOMERS OF XYLENE | 203 |
| 1486:K0316 | 45202 | .50 | 92.15 | TOLUENE | 213 |
| 1487:K0316 | 43201 | 28.60 | 16.04 | METHANE | 223 |
| 1488:K0316 | 43202 | 5.80 | 30.07 | ETHANE | 233 |
| 1489:K0316 | 45201 | .10 | 78.12 | BENZENE | 243 |
| 1490:K0321 | 00.00 | 00.00 | 00.00 | 306008P | 2 |
| 1491:K0321 | 43105 | 5.50 | 86.18 | ISOMERS OF HEXANE | 13 |
| 1492:K0321 | 43106 | 4.10 | 100.21 | ISOMERS OF HEPTANE | 23 |
| 1493:K0321 | 43107 | 2.80 | 114.23 | ISOMERS OF OCTANE | 33 |
| 1494:K0321 | 43108 | 3.10 | 128.26 | ISOMERS OF NONANE | 43 |
| 1495:K0321 | 43109 | 1.90 | 142.29 | ISOMERS OF DECANE | 53 |
| 1496:K0321 | 43115 | 1.10 | 98.19 | C-7 CYCLOPARAFFINS | 63 |
| 1497:K0321 | 43116 | .10 | 112.23 | C-8 CYCLOPARAFFINS | 73 |
| 1498:K0321 | 43117 | .80 | 126.26 | C-9 CYCLOPARAFFINS | 83 |
| 1499:K0321 | 43122 | 6.60 | 72.15 | ISOMERS OF PENTANE | 93 |

## TABLE E-4 (continued)

```
1500:K0321  43204       3.70     44.09  PROPANE                                103
1501:K0321  43212       8.10     58.12  N-BUTANE                               123
1502:K0321  43214        .80     58.12  ISOBUTANE                              133
1503:K0321  43220      11.10     72.15  N-PENTANE                              143
1504:K0321  43231      11.00     86.18  N-HEXANE                               153
1505:K0321  43232       8.50    100.21  N-HEPTANE                              163
1506:K0321  43233      12.00    114.23  N-OCTANE                               173
1507:K0321  43235       3.90    128.26  N-NONANE                               183
1508:K0321  43238       5.10    142.29  N-DECANE                               193
1509:K0321  43248        .50     84.16  CYCLOHEXANE                            203
1510:K0321  45102       1.30    106.17  ISOMERS OF XYLENE                      213
1511:K0321  45202       3.00     92.15  TOLUENE                                223
1512:K0321  43201       3.30     16.04  METHANE                                233
1513:K0321  43202       1.20     30.07  ETHANE                                 243
1514:K0321  45201        .50     78.12  BENZENE                                253
1515:K0330      90.00  10.00  12.20      907021                                  2
1516:K0330  43212       3.20     58.12  N-BUTANE                                13
1517:K0330  43220       1.80     72.15  N-PENTANE                               23
1518:K0330  43231       1.40     86.18  N-HEXANE                                33
1519:K0330  43232       0.40    100.21  N-HEPTANE                               43
1520:K0330  43233       0.40    114.23  N-OCTANE                                53
1521:K0330  43235       0.40    128.26  N-NONANE                                63
1522:K0330  43260      35.10    212.42  N-PENTADECANE                           73
1523:K0330  43203      10.70     28.05  ETHYLENE                                83
1524:K0330  43205       4.00     42.08  PROPYLENE                               93
1525:K0330  45101      17.60    114.00  NAPHTHA                                103
1526:K0330  45102       0.30    106.17  ISOMERS OF XYLENE                      113
1527:K0330  45107       0.20    120.19  ISOMERS OF TRIMETHYLBENZENE            123
1528:K0330  45202       1.80     92.15  TOLUENE                                133
1529:K0330  43502      12.20     30.03  FORMALDEHYDE                           143
1530:K0330  43206       3.80     26.04  ACETYLENE                              153
1531:K0330  43201       4.40     16.04  METHANE                                163
1532:K0330  43202       0.40     30.07  ETHANE                                 173
1533:K0330  45201       1.90     78.12  BENZENE                                183
1534:K0333      00.00  00.00  00.00      405004A                                 2
1535:K0333  43204       3.30     44.09  PROPANE                                 13
1536:K0333  43212      11.50     58.12  N-BUTANE                                23
1537:K0333  43214       1.80     58.12  ISOBUTANE                               33
1538:K0333  43304        .90     60.09  ISOPROPYL ALCOHOL                       43
1539:K0333  43802      34.90     84.94  DICHLOROMETHANE                         53
1540:K0333  43201      37.70     16.04  METHANE                                 63
1541:K0333  43202      10.00     30.07  ETHANE                                  73
1542:K0334                    00.00      405002A                                 2
1543:K0334  43204       3.00     44.09  PROPANE                                 13
1544:K0334  43212       3.00     58.12  N-BUTANE                                23
1545:K0334  43214       1.00     58.12  ISOBUTANE                               33
1546:K0334  43203      13.00     28.05  ETHYLENE                                43
1547:K0334  43205       3.00     42.08  PROPYLENE                               53
1548:K0334  43213       1.00     56.10  BUTENE                                  63
1549:K0334  43201      69.00     16.04  METHANE                                 73
1550:K0334  43202       7.00     30.07  ETHANE                                  83
1551:R0001      97.00   3.00             R0001     IP WOOD RIVER NO.4            2
1552:R0001  43202       2.09     30.07  ETHANE                                  13
1553:R0001  43204       1.78     44.09  PROPANE                                 23
1554:R0001  43213        .79     56.10  1-BUTENE                                33
1555:R0001  43212        .98     58.12  N-BUTANE                                43
1556:R0001  43221       1.22     72.15  ISOPENTANE                              53
1557:R0001  43227       1.05     70.14  CIS,2-PENTENE                           63
1558:R0001  43245       3.63     84.16  1-HEXENE                                73
1559:R0001  43231       9.45     86.1   N-HEXANE                                83
```

## TABLE E-4 (continued)

```
1560:R0001  43268       2.67     98.19  3,3 DIMETHYL,1-PENTENE                 93
1561:R0001  43247       6.39    100.21  2,4 DIMETHYLPENTANE                   103
1562:R0001  43264       3.69     98.19  1-HEPTENE                             113
1563:R0001  43232       1.50    100.21  N-HEPTANE                             123
1564:R0001  45202       5.62     92.15  TOLUENE                               133
1565:R0001  45203      11.25    106.17  ETHYL BENZENE                         143
1566:R0001  45205      39.23    106.17  1,3 DIMETHYLBENZENE                   153
1567:R0001  45204       8.66    106.17  ORTHOXYLENE                           163
1568:R0003     96.00  4.00             TABLE A-3                                2
1569:R0003  43800      77.00     35.00  C1-C3 PARAFFINS, NON-REACTIVES         13
1570:R0003  45201       6.00     78.12  BENZENE                                23
1571:R0003  43200       1.00     35.00  C4+ PARAFFINS, OLEFINS                 33
1572:R0003  43200      13.00     35.00  C4+ PARAFFINS, OLEFINS                 43
1573:R0003  45100       3.00     95.64  PRIM. AND SEC-ALKYL BENZENES           53
1574:X0001                             X0001  70% STODDARD/30% PERCHLOROETHYLENE  2
1575:X0001  43107        .20    114.23  ISOMERS OF OCTANE                      13
1576:X0001  43108       8.20    128.26  ISOMERS OF NONANE                      23
1577:X0001  43109      20.80    142.29  ISOMERS OF DECANE                      33
1578:X0001  43110        .80    156.32  ISOMERS OF UNDECANE                    43
1579:X0001  43817      70.00    165.83  PERCHLOROETHYLENE                      53
1580:X0002     90.00  10.00  03.92            X0002 COM HGHWY VEH. PROFILE      2
1581:X0002  43212       5.99     58.12  N-BUTANE                               13
1582:X0002  43122      16.55     72.15  ISOMERS OF PENTANE                     23
1583:X0002  43105       6.19     86.18  ISOMERS OF HEXANE                      33
1584:X0002  43106       5.50    100.21  ISOMERS OF HEPTANE                     43
1585:X0002  43107       7.76    114.23  ISOMERS OF OCTANE                      53
1586:X0002  43108        .98    128.26  ISOMERS OF NONANE                      63
1587:X0002  43109       0.39    142.29  ISOMERS OF DECANE                      73
1588:X0002  43203       6.87     28.05  ETHYLENE                               83
1589:X0002  43205       4.84     42.08  PROPYLENE                              93
1590:X0002  43120       4.15     56.10  ISOMERS OF BUTENE                     103
1591:X0002  43121       3.95     70.14  ISOMERS OF PENTENE                    113
1592:X0002  43245       1.26     84.16  1-HEXENE                              123
1593:X0002  43561       0.76     98.15  CYCLOHEXANONE                         133
1594:X0002  45102       2.64    106.17  ISOMERS OF XYLENE                     143
1595:X0002  45105       0.06    134.22  ISOMERS OF BUTYLBENZENE               153
1596:X0002  45107       2.15    120.19  ISOMERS OF TRIMETHYLBENZENE           163
1597:X0002  45202      10.61     92.15  TOLUENE                               173
1598:X0002  45203       0.56    106.17  ETHYLBENZENE                          183
1599:X0002  43502       3.67     30.03  FORMALDEHYDE                          193
1600:X0002  43206       5.16     26.04  ACETYLENE                             203
1601:X0002  43201       6.45     16.04  METHANE                               213
1602:X0002  43202       0.80     30.07  ETHANE                                223
1603:X0002  45201       2.69     78.12  BENZENE                               233
1604:X0002  43265       0.05    112.14  1-OCTENE                              243
1605:X0003     00.00  00.00  00.00   K0334(18%),K0172(13%),D0333(28%),K0181(41%)  2
1606:X0003  43118       2.2     114.00  MINERAL SPIRITS                        13
1607:X0003  43119        .41    114.00  LACTOL SPIRITS                         23
1608:X0003  43201      23.02     16.04  METHANE                                33
1609:X0003  43202       4.06     30.07  ETHANE                                 43
1610:X0003  43203       2.34     28.05  ETHYLENE                               53
1611:X0003  43204       1.46     44.09  PROPANE                                63
1612:X0003  43205        .54     42.08  PROPYLENE                              73
1613:X0003  43212       3.74     58.12  N-BUTANE                               83
1614:X0003  43213        .18     56.10  BUTENE                                 93
1615:X0003  43214        .68     58.12  ISOBUTANE                             103
1616:X0003  43231       2.54     86.18  N-HEXANE                              113
1617:X0003  43232       2.7     100.21  N-HEPTANE                             123
1618:X0003  43302       9.73     46.07  ETHYL ALCOHOL                         133
1619:X0003  43303       3.28     60.09  N-PROPYL ALCOHOL                      143
```

## TABLE E-4 (continued)

```
1620:X0003  43304      6.07     60.09  ISOPROPYL ALCOHOL                          153
1621:X0003  43351       .12     74.12  ETHYL ETHER                                163
1622:X0003  43433      9.42     88.10  ETHYL ACETATE                              173
1623:X0003  43434       .53    102.13  PROPYL ACETATE                             183
1624:X0003  43444      8.24    104.00  ISOPROPYL ACETATE                          193
1625:X0003  43452       .55    132.00  2-ETHOXYETHYL ACETATE                      203
1626:X0003  43551       .33     58.08  ACETONE                                    213
1627:X0003  43552      3.20     72.10  METHYL ETHYL KETONE                        223
1628:X0003  43802      9.80     84.94  DICHLOROMETHANE                            233
1629:X0003  45202      4.9      92.15  TOLUENE                                    243
1630:X0004       00.00  00.00  00.00   X0004 D0J01=33%,K0098=33%,K0315=33%          2
1631:X0004  43105      2.20     86.18  ISOMERS OF HEXANE                           13
1632:X0004  43107      1.87    114.23  ISOMERS OF OCTANE                           23
1633:X0004  43108      6.87    128.26  ISOMERS OF NONANE                           33
1634:X0004  43109      5.53    142.29  ISOMERS OF DECANE                           43
1635:X0004  43115       .80     98.19  C-7 CYCLOPARAFFINS                          53
1636:X0004  43116       .20    112.23  C-8 CYCLOPARAFFINS                          63
1637:X0004  43117      1.60    126.26  C-9 CYCLOPARAFFINS                          73
1638:X0004  43122       .13     72.15  ISOMERS OF PENTANE                          83
1639:X0004  43204       .23     44.09  PROPANE                                     93
1640:X0004  43212       .75     58.12  N-BUTANE                                   103
1641:X0004  43213       .13     56.10  BUTENE                                     113
1642:X0004  43214       .17     58.12  ISOBUTANE                                  123
1643:X0004  43220      4.49     72.15  N-PENTANE                                  133
1644:X0004  43224       .83     70.14  1-PENTENE                                  143
1645:X0004  43228      7.40     70.14  2-METHYL-2-BUTENE                          153
1646:X0004  43231      7.50     86.18  N-HEXANE                                   163
1647:X0004  43232      3.73    100.21  N-HEPTANE                                  173
1648:X0004  43233      5.67    114.23  N-OCTANE                                   183
1649:X0004  43235      4.94    128.26  N-NONANE                                   193
1650:X0004  43241      6.77    156.32  N-UNDECANE                                 203
1651:X0004  43248       .50     84.16  CYCLOHEXANE                                213
1652:X0004  43255      6.07    170.34  N-DODECANE                                 223
1653:X0004  43258      5.90    184.36  N-TRIDECANE                                233
1654:X0004  43259      3.90    198.40  N-TETRADECANE                              243
1655:X0004  43260      2.40    212.42  N-PENTADECANE                              253
1656:X0004  45102      6.83    106.17  ISOMERS OF XYLENE                          263
1657:X0004  45104      2.17    120.19  ISOMERS OF ETHYLTOLUENE                    273
1658:X0004  45105      1.47    134.22  ISOMERS OF BUTYLBENZENE                    283
1659:X0004  45107      1.83    120.19  ISOMERS OF TRIMETHYLBENZENE                293
1660:X0004  45201      1.63     78.12  BENZENE                                    303
1661:X0004  45202      5.30     92.15  TOLUENE                                    313
1662:X0005       00.00  00.00  00.00   X0005 METHYL ISOBUTYL KETONE                 2
1663:X0005  43560    100.00    100.16  METHYL ISOBUTYL KETONE                      13
1664:X0006                             X0006                                        2
1665:X0006  43105      8.90     86.18  ISOMERS OF HEXANE                           13
1666:X0006  43106      2.19    100.21  ISOMERS OF HEPTANE                          23
1667:X0006  43107      2.24    114.23  ISOMERS OF OCTANE                           33
1668:X0006  43108       .26    128.26  ISOMERS OF NONANE                           43
1669:X0006  43115       .24     98.19  C-7CYCLOPARAFFINS                           53
1670:X0006  43122     27.56     72.15  ISOMERS OF PENTANE                          63
1671:X0006  43204      1.71     44.09  PROPANE                                     73
1672:X0006  43212     18.94     58.12  N-BUTANE                                    83
1673:X0006  43213      1.73     56.10  BUTENE                                      93
1674:X0006  43214      6.31     58.12  ISOBUTANE                                  103
1675:X0006  43220     10.28     72.15  N-PENTANE                                  113
1676:X0006  43224      6.02     70.14  1-PENTENE                                  123
1677:X0006  43231      2.56     86.18  N-HEXANE                                   133
1678:X0006  43232       .70    100.21  N-HEPTANE                                  143
1679:X0006  43233       .16    114.23  N-OCTANE                                   153
```

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 1680:X0006 | 43235 | .03 | 128.26 | N-NONANE | 163 |
| 1681:X0006 | 43238 | .12 | 142.29 | N-DECANE | 173 |
| 1682:X0006 | 43248 | 2.20 | 84.16 | CYCLOHEXANE | 183 |
| 1683:X0006 | 45102 | 2.18 | 106.17 | ISOMERS OF XYLENE | 193 |
| 1684:X0006 | 45103 | .23 | 134.22 | DIMETHYLETHYLBENZENE | 203 |
| 1685:X0006 | 45104 | .80 | 120.19 | ISOMERS OF ETHYLTOLUENE | 213 |
| 1686:X0006 | 45105 | .08 | 134.22 | ISOMERS OF BUTYLBENZENE | 223 |
| 1687:X0006 | 45107 | .54 | 120.19 | ISOMERS OF TRIMETHYLBENZENE | 233 |
| 1688:X0006 | 45108 | .02 | 120.19 | ISOMERS OF PROPYLBENZENE | 243 |
| 1689:X0006 | 45201 | 1.17 | 78.12 | BENZENE | 253 |
| 1690:X0006 | 45202 | 2.47 | 92.15 | TOLUENE | 263 |
| 1691:X0007 | 00.00 | 00.00 | 00.15 | X0007 | 2 |
| 1692:X0007 | 43105 | .40 | 86.18 | ISOMERS OF HEXANE | 13 |
| 1693:X0007 | 43107 | .35 | 114.23 | ISOMERS OF OCTANE | 23 |
| 1694:X0007 | 43108 | 7.22 | 128.26 | ISOMERS OF NONANE | 33 |
| 1695:X0007 | 43109 | 17.54 | 142.29 | ISOMERS OF DECANE | 43 |
| 1696:X0007 | 43110 | .63 | 156.32 | ISOMERS OF UNDECANE | 53 |
| 1697:X0007 | 43115 | .52 | 98.19 | C-7 CYCLOPARAFFINS | 63 |
| 1698:X0007 | 43116 | .06 | 112.23 | C-8 CYCLOPARAFFINS | 73 |
| 1699:X0007 | 43117 | .11 | 126.26 | C-9 CYCLOPARAFFINS | 83 |
| 1700:X0007 | 43118 | .53 | 114.00 | MINERAL SPIRITS | 93 |
| 1701:X0007 | 43119 | .01 | 114.00 | LACTOL SPIRITS | 103 |
| 1702:X0007 | 43122 | .10 | 72.15 | ISOMERS OF PENTANE | 113 |
| 1703:X0007 | 43201 | .76 | 16.04 | METHANE | 123 |
| 1704:X0007 | 43202 | .13 | 30.07 | ETHANE | 133 |
| 1705:X0007 | 43203 | .08 | 28.05 | ETHYLENE | 143 |
| 1706:X0007 | 43204 | .12 | 44.09 | PROPANE | 153 |
| 1707:X0007 | 43205 | .02 | 42.08 | PROPYLENE | 163 |
| 1708:X0007 | 43212 | .30 | 58.12 | N-BUTANE | 173 |
| 1709:X0007 | 43213 | .02 | 56.10 | BUTENE | 183 |
| 1710:X0007 | 43214 | 1.41 | 58.12 | ISOBUTANE | 193 |
| 1711:X0007 | 43220 | .41 | 72.15 | N-PENTANE | 203 |
| 1712:X0007 | 43224 | .04 | 70.14 | 1 PENTENE | 213 |
| 1713:X0007 | 43228 | .51 | 70.14 | 2-METHYL 2-BUTENE | 223 |
| 1714:X0007 | 43231 | 4.51 | 86.18 | N-HEXANE | 233 |
| 1715:X0007 | 43232 | .35 | 100.21 | N-HEPTANE | 243 |
| 1716:X0007 | 43233 | .39 | 114.23 | N-OCTANE | 253 |
| 1717:X0007 | 43235 | .34 | 128.26 | N-NONANE | 263 |
| 1718:X0007 | 43241 | .47 | 156.32 | N-UNDECANE | 273 |
| 1719:X0007 | 43248 | 3.84 | 84.16 | CYCLOHEXANE | 283 |
| 1720:X0007 | 43255 | .42 | 170.34 | N-DODECANE | 293 |
| 1721:X0007 | 43258 | .41 | 184.36 | N-TRIDECANE | 303 |
| 1722:X0007 | 43259 | .27 | 198.40 | N-TETRADECANE | 313 |
| 1723:X0007 | 43260 | .17 | 212.42 | N-PENTADECANE | 323 |
| 1724:X0007 | 43301 | 2.11 | 32.04 | METHYL ALCOHOL | 333 |
| 1725:X0007 | 43302 | 11.07 | 46.07 | ETHYL ALCOHOL | 343 |
| 1726:X0007 | 43303 | .11 | 60.09 | N-PROPYL ALCOHOL | 353 |
| 1727:X0007 | 43304 | 14.29 | 60.09 | ISOPROPYL ALCOHOL | 363 |
| 1728:X0007 | 43305 | .29 | 74.12 | N-BUTYL ALCOHOL | 373 |
| 1729:X0007 | 43306 | .11 | 74.12 | ISOBUTYL ALCOHOL | 383 |
| 1730:X0007 | 43367 | 2.08 | 62.07 | GLYCOL ETHER | 393 |
| 1731:X0007 | 43369 | .95 | 76.00 | PROPYLENE GLYCOL | 403 |
| 1732:X0007 | 43370 | .11 | 62.07 | ETHYLENE GLYCOL | 413 |
| 1733:X0007 | 43433 | .31 | 88.10 | ETHYL ACETATE | 423 |
| 1734:X0007 | 43434 | .02 | 102.13 | PROPYL ACETATE | 433 |
| 1735:X0007 | 43435 | .79 | 116.16 | N-BUTYL ACETATE | 443 |
| 1736:X0007 | 43444 | .27 | 104.00 | ISOPROPYL ACETATE | 453 |
| 1737:X0007 | 43446 | .28 | 116.16 | ISOBUTYL ACETATE | 463 |
| 1738:X0007 | 43451 | 1.12 | 144.21 | ISOBUTYL ISOBUTYRATE | 473 |
| 1739:X0007 | 43452 | .26 | 132.00 | 2-ETHOXYETHYL ACETATE | 483 |

## TABLE E-4 (continued)

| | | | | | |
|---|---|---|---|---|---|
| 1740:X0007 | 43502 | .15 | 30.03 | FORMALDEHYDE | 493 |
| 1741:X0007 | 43551 | 3.40 | 58.08 | ACETONE | 503 |
| 1742:X0007 | 43552 | 3.63 | 72.10 | METHYL ETHYL KETONE | 513 |
| 1743:X0007 | 43559 | .13 | 100.16 | METHYL N-BUTYL KETONE | 523 |
| 1744:X0007 | 43560 | 1.35 | 100.16 | METHYL ISOBUTYL KETONE | 533 |
| 1745:X0007 | 43802 | .32 | 84.94 | DICHLORO METHANE | 543 |
| 1746:X0007 | 43817 | 6.10 | 165.83 | PERCHLOROETHYLENE | 553 |
| 1747:X0007 | 43819 | .30 | 173.85 | METHYLENE BROMIDE | 563 |
| 1748:X0007 | 45101 | 1.13 | 114.00 | NAPHTHA | 573 |
| 1749:X0007 | 45102 | 2.40 | 106.17 | ISOMERS OF XYLENE | 583 |
| 1750:X0007 | 45104 | .15 | 120.19 | ISOMERS OF ETHYLTOLUENE | 593 |
| 1751:X0007 | 45105 | .10 | 134.22 | ISOMERS OF BUTYLBENZENE | 603 |
| 1752:X0007 | 45107 | .13 | 120.19 | ISOMERS OF TRIMETHYLBENZENE | 613 |
| 1753:X0007 | 45201 | .48 | 78.12 | BENZENE | 623 |
| 1754:X0007 | 45202 | 2.63 | 92.15 | TOLUENE | 633 |
| 1755:X0007 | 45203 | .79 | 106.17 | ETHYLBENZENE | 643 |
| 1756:X0008 | | | 00.00 | K0272(33%),K0273(33%),K0274(33%) | 2 |
| 1757:X0008 | 43105 | 8.10 | 86.18 | ISOMERS OF HEXANE | 13 |
| 1758:X0008 | 43106 | 1.60 | 100.21 | ISOMERS OF HEPTANE | 23 |
| 1759:X0008 | 43107 | 0.30 | 114.23 | ISOMERS OF OCTANE | 33 |
| 1760:X0008 | 43115 | 47.70 | 98.19 | C-7 CYCLOPARAFFINS | 43 |
| 1761:X0008 | 43116 | 2.10 | 112.23 | C-8 CYCLOPARAFFINS | 53 |
| 1762:X0008 | 43231 | 13.10 | 86.18 | HEXANE | 63 |
| 1763:X0008 | 43232 | 0.60 | 100.21 | HEPTANE | 73 |
| 1764:X0008 | 43233 | 0.10 | 114.23 | OCTANE | 83 |
| 1765:X0008 | 43242 | 0.10 | 70.14 | CYCLOPENTANE | 93 |
| 1766:X0008 | 43248 | 5.60 | 84.16 | CYCLOHEXANE | 103 |
| 1767:X0008 | 43262 | 17.10 | 84.16 | METHYLCYCLOPENTANE | 113 |
| 1768:X0008 | 45202 | 0.10 | 92.15 | TOLUENE | 123 |
| 1769:X0008 | 45201 | 3.50 | 78.12 | BENZENE | 133 |
| 1770:X0009 | | | 00.00 | K0148(25%),K0156(25%),402006C(25%),402007B(25%) | 2 |
| 1771:X0009 | 43118 | 38.08 | 114.00 | MINERAL SPIRITS | 13 |
| 1772:X0009 | 45102 | 2.75 | 106.16 | XYLENE | 23 |
| 1773:X0009 | 45202 | 12.00 | 92.13 | TOLUENE | 33 |
| 1774:X0009 | 43561 | 2.00 | 98.15 | CYCLOHEXANONE | 43 |
| 1775:X0009 | 43551 | 12.33 | 58.08 | ACETONE | 53 |
| 1776:X0009 | 43552 | 12.05 | 72.10 | METHYL ETHLY KETONE | 63 |
| 1777:X0009 | 43304 | 6.53 | 60.09 | ISO-PROPYL ALCOHOL | 73 |
| 1778:X0009 | 43445 | 1.00 | 140.00 | METHYL AMYL ACETATE | 83 |
| 1779:X0009 | 43560 | 0.68 | 100.16 | METHYL ISOBUTYL KETONE | 93 |
| 1780:X0009 | 43301 | 0.18 | 32.04 | METHYL ALCOHOL | 103 |
| 1781:X0009 | 43302 | 0.13 | 46.07 | ETHYL ALCOHOL | 113 |
| 1782:X0009 | 43305 | 1.78 | 74.12 | N-BUTYL ALCOHOL | 123 |
| 1783:X0009 | 43433 | 0.80 | 88.10 | ETHYL ACETATE | 133 |
| 1784:X0009 | 43435 | 3.58 | 116.16 | N-BUTYL ACETATE | 143 |
| 1785:X0009 | 43444 | 4.25 | 104.00 | ISOPROPYL ACETATE | 153 |
| 1786:X0009 | 43233 | 0.20 | 114.23 | OCTANE | 163 |
| 1787:X0009 | 43248 | 9.70 | 84.16 | CYCLOHEXANE | 173 |
| 1788:X0010 | | | 00.00 | 12.5% OF K0148;402004D&E;K0134,56;K0162,4;K0092 | 2 |
| 1789:X0010 | 43118 | 31.24 | 114.00 | MINERAL SPIRITS | 13 |
| 1790:X0010 | 45102 | 2.57 | 106.17 | XYLENE | 23 |
| 1791:X0010 | 45202 | 2.86 | 92.15 | TOLUENE | 33 |
| 1792:X0010 | 43561 | 1.00 | 98.19 | CYCLOHEXANONE | 43 |
| 1793:X0010 | 43551 | 4.76 | 58.08 | ACETONE | 53 |
| 1794:X0010 | 43552 | 5.54 | 72.10 | METHYL ETHYL KETONE | 63 |
| 1795:X0010 | 43304 | 3.88 | 60.09 | ISOOPROPYL ALCOHOL | 73 |
| 1796:X0010 | 43445 | 0.48 | 140.00 | METHYL AMYL ACETATE | 83 |
| 1797:X0010 | 43220 | 0.78 | 72.15 | N-PENTANE | 93 |
| 1798:X0010 | 45101 | 2.73 | 114.00 | NAPTHA | 110 |
| 1799:X0010 | 43205 | 0.28 | 42.08 | PROPYLENE | 113 |

## TABLE E-4 (continued)

```
1800:X0010  43560       1.28   100.16  METHYL ISOBUTYL KETONE                         123
1801:X0010  43213       0.09    56.10  BUTENE                                         133
1802:X0010  43301       0.39    32.04  METHYL ALCOHOL                                 143
1803:X0010  43224       0.28    70.14  1-PENTENE                                      153
1804:X0010  43302       0.29    46.07  ETHYL ALCOHOL                                  163
1805:X0010  43502       0.39    30.03  FORMALDEHYDE                                   173
1806:X0010  43305       1.64    74.12  N-BUTYL ALCOHOL                                183
1807:X0010  43367       2.09    62.07  GLYCOL ETHER                                   203
1808:X0010  43432       0.37    74.08  METHYL ACETATE                                 213
1809:X0010  43433       1.44    88.10  ETHYL ACETATE                                  223
1810:X0010  43435      19.23   116.16  N-BUTYL ACETATE                                233
1811:X0010  43444       2.96   104.00  ISOPROPYL ACETATE                              243
1812:X0010  43204       0.41    44.09  PROPANE                                        253
1813:X0010  43212       2.92    58.12  N-BUTANE                                       263
1814:X0010  43203       0.23    28.05  ETHYLENE                                       273
1815:X0010  43201       9.42    16.04  METHANE                                        283
1816:X0010  43202       0.61    30.07  ETHANE                                         293
1817:X0011                  03.11  14.3% OF K0164,6;K0172,K0183,405004B,405005C     2
1818:X0011  43204       1.71    44.09  PROPANE                                         13
1819:X0011  43212       0.14    58.12  N-BUTANE                                        23
1820:X0011  43201      11.44    16.04  METHANE                                         33
1821:X0011  43202       3.43    30.07  ETHANE                                          43
1822:X0011  43302       6.80    46.07  ETHYL ALCOHOL                                   53
1823:X0011  43303      17.76    60.09  N-PROPYL ALCOHOL                                63
1824:X0011  43304       2.39    60.09  ISOPROPYL ALCOHOL                               73
1825:X0011  43351       0.13    74.12  ETHYL ETHER                                     83
1826:X0011  43433       2.16    88.10  ETHYL ACETATE                                   93
1827:X0011  43452       0.20   132.00  ACETIC ACID 2-ETHOXYETHYL ESTER                103
1828:X0011  43203       0.29    28.05  ETHYLENE                                       113
1829:X0011  43205       4.80    42.08  PROPYLENE                                      123
1830:X0011  43213       1.94    56.10  N-BUTANE                                       133
1831:X0011  43224       1.70    70.13  1-PENTENE                                      143
1832:X0011  43502       3.11    30.03  FORMALDEHYDE                                   153
1833:X0011  43118      31.00   114.00  MINERAL SPIRITS                                163
1834:X0011  45102       1.14   106.16  XYLENE                                         173
1835:X0011  45202       3.71    92.13  TOLUENE                                        183
1836:X0011  43248       1.43    84.16  CYLCOHEXANE                                    193
1837:X0011  45106       1.00   134.21  ISOMERS OF DIETHYLBENZENE                      203
1838:X0011  45203       0.86   106.16  ETHYLBENZENE                                   213
1839:X0011  43301       0.86    32.04  METHYL ALCOHOL                                 223
1840:X0011  43305       0.86    74.12  N-BUTYL ALCOHOL                                233
1841:X0011  43435       1.14   116.16  N-BUTYL ACETATE                                243
1842:X0012                  00.00  X0012     METHYL ACETATE                             2
1843:X0012  43432     100.00    74.08  METHYL ACETATE                                  13
1844:X0013                  00.00  X0013                                                2
1845:X0013  43824      21.07   131.40  TRICHLOROETHYLENE                               13
1846:X0013  43814      22.31   133.42  1,1,1-TRICHLOROETHANE                           23
1847:X0013  43817       7.44   165.83  PERCHLOROETHYLENE                               33
1848:X0013  43802       4.13    84.94  METHYLENE CHLORIDE                              43
1849:X0013  43821       4.13   187.30  TRICHLOROTRIFLUOROETHANE                        53
1850:X0013  45201       0.96    78.12  BENZENE                                         63
1851:X0013  45202       3.58    92.15  TOLUENE                                         73
1852:X0013  45102       1.65   106.17  XYLENE                                          83
1853:X0013  43248       0.14    84.16  CYCLOHEXANE                                     93
1854:X0013  43551       1.38    58.08  ACETONE                                        103
1855:X0013  43552       1.11    72.10  METHYLETHYLKETONE                              113
1856:X0013  43305       0.69    74.12  BUTANOL                                        123
1857:X0013  43367       0.83    62.07  GLYCOL ETHER                                   133
1858:X0013  43105      30.58    86.18  ISOMERS OF HEXANE                              143
1859:
```

TABLE E-5. SPECIES/CLASS ASSIGNMENTS, 1980 NAPAP INVENTORY VERSION 5.2

| Class | M.W. | Compound (Species) Name |
|---|---|---|
| 1 | 16.04 | METHANE |
| 2 | 30.07 | ETHANE |
| 3 | 44.09 | PROPANE |
| 4 | 58.12 | N-BUTANE |
| 5 | 58.12 | ISOBUTANE |
| 7 | 72.15 | N-PENTANE |
| 8 | 72.15 | ISOPENTANE |
| 9 | 133.42 | 1,1,1,-TRICHLOROETHANE |
| 9 | 133.42 | 1,1,2-TRICHLOROETHANE |
| 9 | 98.97 | 1,1,DICHLOROETHANE |
| 9 | 88.12 | 1,4 DIOXANE |
| 9 | 100.21 | 2,4, DIMETHYL PENTANE |
| 9 | 132 | 2-ETHOXYETHYL ACETATE |
| 9 | 26.04 | ACETYLENE |
| 9 | 118.17 | BUTYL CELLOSOLVE |
| 9 | 98.19 | C-7 CYCLOPARAFFINS |
| 9 | 112.23 | C-8 CYCLOPARAFFINS |
| 9 | 126.26 | C-9 CYCLOPARAFFINS |
| 9 | 331.67 | CARBON TETRABROMIDE |
| 9 | 90.12 | CELLOSOLVE |
| 9 | 132 | CELLOSOLVE ACETATE |
| 9 | 119.39 | CHLOROFORM |
| 9 | 84.16 | CYCLOHEXANE |
| 9 | 70.14 | CYCLOPENTANE |
| 9 | 42.08 | CYCLOPROPANE |
| 9 | 120.91 | DICHLORODIFLUOROMETHANE |
| 9 | 84.94 | DICHLOROMETHANE |
| 9 | 46.07 | ETHYL ALCOHOL |
| 9 | 64.52 | ETHYL CHLORIDE |
| 9 | 74.12 | ETHYL ETHER |
| 9 | 45.09 | ETHYLAMINE |
| 9 | 44.05 | ETHYLENE OXIDE |
| 9 | 99 | ETHYLENE DICHLORIDE |
| 9 | 62.07 | ETHYLENE GLYCOL |
| 9 | 62.07 | GLYCOL |
| 9 | 62.07 | GLYCOL ETHER |
| 9 | 116.16 | ISOBUTYL ACETATE |
| 9 | 74.12 | ISOBUTYL ALCOHOL |
| 9 | 144.21 | ISOBUTYL ISOBUTYRATE |
| 9 | 142.29 | ISOMERS OF DECANE |
| 9 | 170.33 | ISOMERS OF DODECANE |
| 9 | 100.21 | ISOMERS OF HEPTANE |
| 9 | 86.18 | ISOMERS OF HEXANE |
| 9 | 128.26 | ISOMERS OF NONANE |
| 9 | 114.23 | ISOMERS OF OCTANE |
| 9 | 212.41 | ISOMERS OF PENTADECANE |
| 9 | 72.15 | ISOMERS OF PENTANE |
| 9 | 198.38 | ISOMERS OF TETRADECANE |
| 9 | 184.36 | ISOMERS OF TRIDECANE |
| 9 | 156.32 | ISOMERS OF UNDECANE |

TABLE E-5 (continued)

| Class | M.W. | Compound (Species) Name |
|---|---|---|
| 9 | 104 | ISOPROPYL ACETATE |
| 9 | 60.09 | ISOPROPYL ALCOHOL |
| 9 | 114 | LACTOL SPIRITS |
| 9 | 32.04 | METHYL ALCOHOL |
| 9 | 140 | METHYL AMYL ACETATE |
| 9 | 76.11 | METHYL CELLOSOLVE |
| 9 | 50.49 | METHYL CHLORIDE |
| 9 | 31.06 | METHYLAMINE |
| 9 | 85 | METHYLCYCLOHEXANE |
| 9 | 84.16 | METHYLCYCLOPENTANE |
| 9 | 173.85 | METHYLENE BROMIDE |
| 9 | 114 | MINERAL SPIRITS |
| 9 | 74.12 | N-BUTYL ALCOHOL |
| 9 | 142.29 | N-DECANE |
| 9 | 310.61 | N-DOCOSANE |
| 9 | 170.34 | N-DODECANE |
| 9 | 282.56 | N-EICOSANE |
| 9 | 296.59 | N-HENEICOSANE |
| 9 | 240.48 | N-HEPTADECANE |
| 9 | 100.21 | N-HEPTANE |
| 9 | 226.45 | N-HEXADECANE |
| 9 | 86.18 | N-HEXANE |
| 9 | 268.53 | N-NONADECANE |
| 9 | 128.26 | N-NONANE |
| 9 | 254.51 | N-OCTADECANE |
| 9 | 114.23 | N-OCTANE |
| 9 | 212.42 | N-PENTADECANE |
| 9 | 60.09 | N-PROPYL ALCOHOL |
| 9 | 198.4 | N-TETRADECANE |
| 9 | 184.36 | N-TRIDECANE |
| 9 | 156.32 | N-UNDECANE |
| 9 | 114 | NAPHTHA |
| 9 | 76 | PROPYLENE GLYCOL |
| 9 | 58.08 | PROPYLENE OXIDE |
| 9 | 74.12 | TERT-BUTYL ALCOHOL |
| 9 | 72.1 | TETRAHYDROFURAN |
| 9 | 137.37 | TRICHLORO-FLUOROMETHANE |
| 9 | 187.38 | TRICHLOROTRIFLUOROMETHANE |
| 9 | 59.11 | TRIMETHYLAMINE |
| 9 | 93.19 | TRIMETHYLFLUOROSILANE |
| 9 | 86 | UNIDENTIFIED HYDROCARBONS |
| 10 | 28.05 | ETHYLENE |
| 11 | 42.08 | PROPYLENE |
| 13 | 56.12 | ISOBUTYLENE |
| 15 | 54.09 | 1,3-BUTADIENE |
| 15 | 98.19 | 1-HEPTENE |
| 15 | 84.16 | 1-HEXENE |
| 15 | 112.22 | 1-OCTENE |
| 15 | 70.14 | 1-PENTENE |
| 15 | 70.14 | 2-METHYL,2-BUTENE |

TABLE E-5 (continued)

| Class | M.W. | Compound (Species) Name |
|---|---|---|
| 15 | 98.19 | 3,3 DIMETHYL, 1-PENTENE |
| 15 | 70.14 | 3-METHYL-1-BUTENE |
| 15 | 41.05 | ACETONITRILE |
| 15 | 55.06 | ACRYLONITRILE |
| 15 | 56.1 | BUTENE |
| 15 | 113.24 | C8 OLEFIN UNK |
| 15 | 70.14 | CIS, 2-PENTENE |
| 15 | 100.11 | ETHYL ACRYLATE |
| 15 | 54.09 | ETHYLACETYLENE |
| 15 | 56.1 | ISOMERS OF BUTENE |
| 15 | 70.14 | ISOMERS OF PENTENE |
| 15 | 40.06 | METHYLACETYLENE |
| 15 | 165.83 | PERCHLOROETHYLENE |
| 15 | 40.06 | PROPADIENE |
| 15 | 136.23 | TERPENES |
| 15 | 131.4 | TRICHLOROETHYLENE |
| 15 | 62.5 | VINYL CHLORIDE |
| 16 | 78.12 | BENZENE |
| 17 | 92.15 | TOLUENE |
| 18 | 106.17 | 1,3 DIMETHYLBENZENE |
| 18 | 106.17 | ISOMERS OF XYLENE |
| 18 | 106.17 | ORTHO XYLENE |
| 19 | 106.17 | ETHYLBENZENE |
| 20 | 120.2 | 1,2,3,-TRIMETHYLBENZENE |
| 20 | 120.2 | 1,3,5-TRIMETHYLBENZENE |
| 20 | 118.18 | A-METHYLSTYRENE |
| 20 | 112.56 | CHLOROBENZENE |
| 20 | 134.22 | DIMETHYLETHYLBENZENE |
| 20 | 134.22 | ISOMERS OF BUTYLBENZENE |
| 20 | 134.22 | ISOMERS OF DIETHYLBENZENE |
| 20 | 120.19 | ISOMERS OF ETHYLTOLUENE |
| 20 | 120.19 | ISOMERS OF PROPYLBENZENE |
| 20 | 120.2 | ISOMERS OF TRIMETHYLBENZENE |
| 20 | 120.19 | ISOMERS OF TRIMETHYLBENZENE |
| 20 | 120.2 | M-ETHYLTOLUENE |
| 20 | 134.21 | N-BUTYLBENZENE |
| 20 | 94.11 | PHENOLS |
| 20 | 95.64 | PRIM. AND SEC-ALKYL BENZENES |
| 20 | 134.21 | SEC-BUTYLBENZENE |
| 20 | 104.16 | STYRENE |
| 20 | 134.22 | TERT-BUTYLBENZENE |
| 20 | 132 | TETRAMETHYLBENZENE |
| 20 | 219.5 | TRI/TETRAALKYL BENZENE |
| 21 | 30.03 | FORMALDEHYDE |
| 22 | 44.05 | ACETALDEHYDE |
| 24 | 72.12 | BUTYRALDEHYDE |
| 24 | 73.09 | DIMETHYLFORMAMIDE |
| 25 | 58.08 | ACETONE |
| 26 | 98.15 | CYCLOHEXANONE |

TABLE E-5 (continued)

| Class | M.W. | Compound (Species) Name |
|---|---|---|
| 26 | 116.16 | DIACETONE ALCOHOL |
| 26 | 72.1 | METHYL ETHYL KETONE |
| 26 | 100.16 | METHYL ISOBUTYL KETONE |
| 26 | 100.16 | METHYL N-BUTYL KETONE |
| 28 | 60.05 | ACETIC ACID |
| 29 | 88.1 | ETHYL ACETATE |
| 29 | 74.08 | METHYL ACETATE |
| 29 | 116.16 | N-BUTYL ACETATE |
| 29 | 102.13 | PROPYL ACETATE |
| 29 | 230 | XYLENE BASE ACIDS |

## TABLE E-6. SPECIES-LEVEL ANALYSIS OF UNIT CONVERSION, SCC 301999

| | |
|---|---|
| 6-Digit SCC | 301999 |
| Speciation Profile | K0079 |
| THC (Tons/Year) | 211348 |

| Wt % | MW | Compound (Species) | Class | Weight Fraction | CALC TONS/YR | CALC 1000-MOLE/YR |
|---|---|---|---|---|---|---|
| 0.7 | 44.05 | Acetaldehyde | Acetalde | 0.007 | 1,479 | 30,469 |
| 0.8 | 72.12 | Butyraldehyde | Aldehyde | 0.008 | 1,691 | 21,268 |
| 1 | 26.04 | Acetylene | Alkane | 0.010 | 2,113 | 73,631 |
| 1.8 | 84.16 | Cyclohexane | Alkane | 0.018 | 3,804 | 41,008 |
| 1.4 | 46.07 | Ethyl Alcohol | Alkane | 0.014 | 2,959 | 58,265 |
| 7.2 | 64.52 | Ethyl chloride | Alkane | 0.072 | 15,217 | 213,963 |
| 4.6 | 44.05 | Ethylene oxide | Alkane | 0.046 | 9,722 | 200,223 |
| 2.5 | 60.09 | Isopropyl Alcohol | Alkane | 0.025 | 5,284 | 79,770 |
| 5.4 | 32.04 | Methyl Alcohol | Alkane | 0.054 | 11,413 | 323,149 |
| 0.9 | 50.49 | Methyl chloride | Alkane | 0.009 | 1,902 | 34,177 |
| 1.4 | 58.08 | Propylene oxide | Alkane | 0.014 | 2,959 | 46,217 |
| 0.5 | 74.12 | n-Butyl Alcohol | Alkane | 0.005 | 1,057 | 12,934 |
| 3 | 55.06 | Acrylonitrile | Alkene | 0.030 | 6,340 | 104,469 |
| 4.1 | 56.1 | Butene | Alkene | 0.041 | 8,665 | 140,127 |
| 0.8 | 100.11 | Ethyl acrylate | Alkene | 0.008 | 1,691 | 15,322 |
| 8.9 | 56.1 | Isomers of Butene | Alkene | 0.089 | 18,810 | 304,178 |
| 0.6 | 62.5 | Vinyl chloride | Alkene | 0.006 | 1,268 | 18,407 |
| 2 | 94.11 | Phenols | Aromatic | 0.020 | 4,227 | 40,747 |
| 3.4 | 104.16 | Styrene | Aromatic | 0.034 | 7,186 | 62,586 |
| 10 | 78.12 | Benzene | Benzene | 0.100 | 21,135 | 245,436 |
| 21.6 | 28.05 | Ethylene | Ethylene | 0.216 | 45,651 | 1,476,461 |
| 1.7 | 30.03 | Formaldehyde | Formalde | 0.017 | 3,593 | 108,541 |
| 1.3 | 230 | Xylene base acids | Org Acid | 0.013 | 2,748 | 10,837 |
| 9 | 42.08 | Propylene | Propylen | 0.090 | 19,021 | 410,079 |
| 4.1 | 92.15 | Toluene | Toluene | 0.041 | 8,665 | 85,308 |
| 1.3 | 106.17 | Isomers of Xylene | Xylene | 0.013 | 2,748 | 23,477 |

Weighted average molecular weights for multicomponent classes:

| | | | | | |
|---|---|---|---|---|---|
| 26.7 | 47.26 | Alkane | 0.267 | 56,430 | 1,083,337 |
| 17.4 | 57.27 | Alkene | 0.174 | 36,775 | 582,503 |
| 5.4 | 100.20 | Aromatic | 0.054 | 11,413 | 103,333 |

## TABLE E-7. CLASS-LEVEL ANALYSIS OF UNIT CONVERSION, SCC 301999

| | |
|---|---|
| 6-Digit SCC | 301999 |
| Speciation Profile | K0079 |
| THC (Tons/Year) | 211348 |

| Class | 1000-MOL /YR | AVG MOL WT | KNOWN TONS/YR | CALC TONS/YR | ERROR (%) |
|---|---|---|---|---|---|
| Acetaldehyde | 30,469 | 44.05 | 1,479 | 1,479 | 0% |
| Aldehyde | 21,268 | 72.61 | 1,691 | 1,702 | 1% |
| Alkane | 1,083,337 | 121.79 | 56,430 | 145,436 | 158% |
| Alkene | 582,503 | 80.41 | 36,775 | 51,630 | 40% |
| Aromatic | 103,333 | 126.14 | 11,413 | 14,368 | 26% |
| Benzene | 245,436 | 78.12 | 21,135 | 21,135 | 0% |
| Ethylene | 1,476,461 | 28.05 | 45,651 | 45,651 | 0% |
| Formaldehyde | 108,541 | 30.03 | 3,593 | 3,593 | 0% |
| Org Acids | 10,837 | 122.09 | 2,748 | 1,458 | -47% |
| Propylene | 410,079 | 42.08 | 19,021 | 19,021 | 0% |
| Toluene | 85,308 | 92.15 | 8,665 | 8,665 | 0% |
| Xylene | 23,477 | 106.17 | 2,748 | 2,748 | 0% |
| Calculated THC | 4,181,051 | | 211,349 | 316,887 | 50% |

★U.S. GOVERNMENT PRINTING OFFICE:1987 -748-121/ 67035